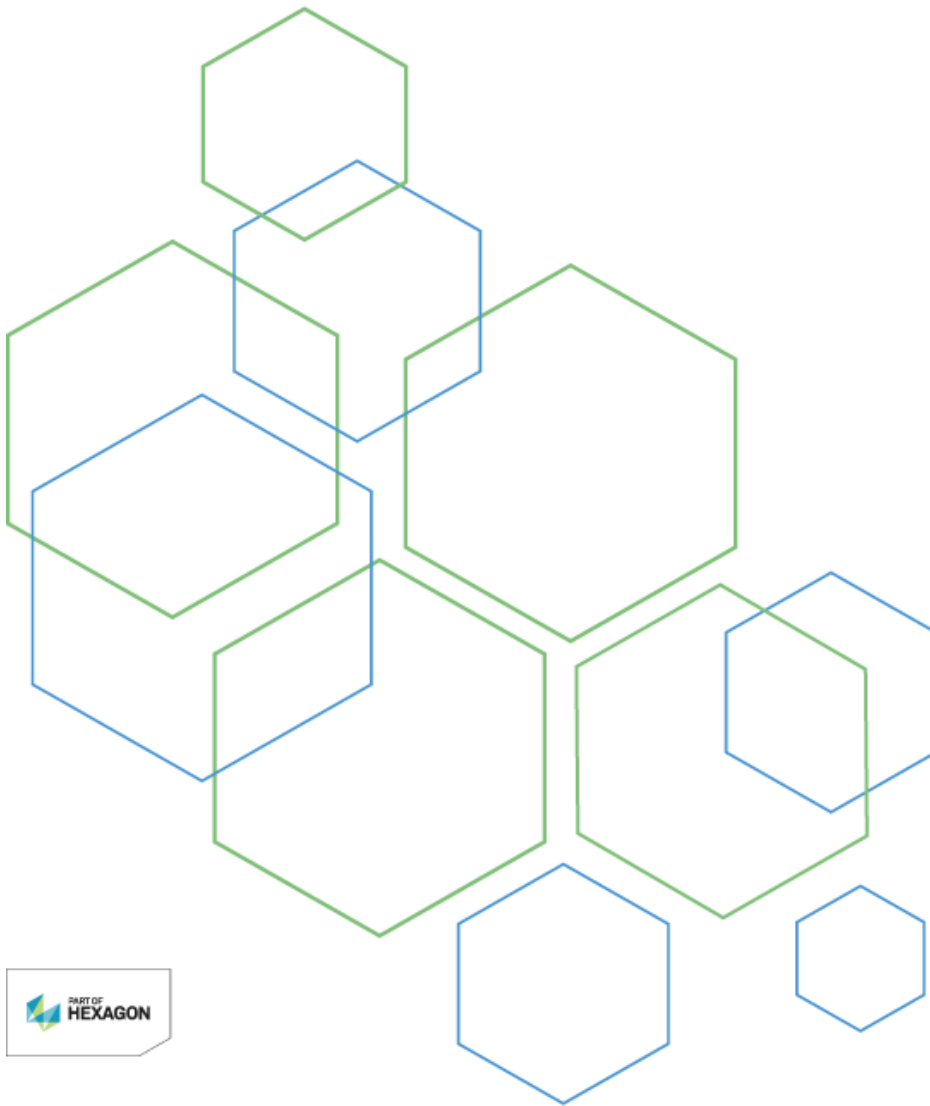




Smart 3D and PDMS

Design and Data Exchange Guide



Version 2016 (11.0)
November 2016

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Preface

This document discusses the methodology and process for exchanging data between Intergraph Smart™ 3D and Plant Design Management System (PDMS®). The content includes a list of supported model object types, known limitations associated with the design and data exchange functionality, best practices, and other administrative tasks.

Documentation Comments

For the latest support information for this product, comments or suggestions about this documentation, and documentation updates for supported software versions, please visit *Intergraph Smart Support* (<https://smartsupport.intergraph.com>).

What's New in Design and Data Exchange with PDMS

The content of the *Design and Data Exchange with PDMS User's Guide* has been updated to support the functional enhancements listed below.

Version 2016 (11.0)

- The folder path for reference data is now *[Reference Data Folder]\SharedContent\...* throughout. The previous path of *[Product Folder]\3DRefData\SharedContent\...* only applies to reference data installed on the client workstation.
- Formerly known as SmartPlant 3D (SP3D) and SmartMarine 3D (SM3D), the products are now integrated and rebranded as Smart 3D (S3D). Replaced all instances of SP3D and SM3D with S3D in this user's guide. (P1 CP:273062)

Export Smart 3D Model Data to Plant Design Management Software (PDMS)

- Clarified **Smart 3D to PDMS Exporter** licensing requirements. For more information, see *Exporting Smart 3D Model Data* (on page 17). (P1 CP:281785)
- The software now exports all aspects that are set on equipment objects (catalog and designed) and shapes to the corresponding mapped PDMS level (such as the Insulation level or Obstruction level). Previously, Smart 3D exported only the Simple Physical aspect to PDMS. For more information, see *AspectMap* (on page 122). (P2 CP:197917)
- The **PipingConnectionItemMap** mapping sheet enables you to define mapping between the unique string created from Smart 3D piping connection items and the PDMS SPREF attribute. For more information, see *PipingConnectionItemMap* (on page 143). (P2 CP:246976)
- The **S3DConnectionItem** property in the **PipingGlobalsMap** mapping sheet enables you to point to the **PipingConnectionItemMap** mapping sheet. For more information, see *PipingGlobalsMap* (on page 138). (P2 CP:246976)
- Limitations that exist when exporting Smart 3D model data to PDMS has been added. For more information, see *Limitations When Exporting from Smart 3D to PDMS* (on page 27). (P2 CP:252748)
- A new mapping sheet, **PipingDesParamAdditionalAttrMap**, provides the ability to map the design parameters of piping instruments and specialties between Smart 3D and PDMS. For more information, see *PipingDesParamAdditionalAttrMap* (on page 143). (P2 CP:253086)

- The software supports mapping different obstruction values to different level values in PDMS. For more information, see *AspectAdditionalAttributes* (on page 122). (P2 CP:256461)
- The PDMS export validation process now includes checking for missing mapping for Smart 3D catalog components in the **NPDSpecificSPREFMap** sheet. For more information, see *PDMS Export Validation Dialog Box* (on page 51). (P2 CP:256462)
- A new mapping sheet, **ElectricalRunSpecAdditionalAttr**, enables you to map additional attributes for the PDMS electrical specification to correct position mismatch of cabletrays. For more information, see *ElectricalRunSpecAdditionalAttr* (on page 115). (P2 CP:260158)
- Added a note to clarify how to use the **Default** value in each sheet as the PDMS **PLine** attribute. For more information, see *Structure Translation Maps* (on page 144). (P2 CP:268902)
- Added more information about the functionality of the **Default** value to the following structure translation maps: **PlateThicknessDirMap**, **SlabFacePositionMap**, **StandardCrossSecAdditionalAtt**, **StructureMatSpecMap**, **StructurePlateMatSpecMap**, and **StructureSlabMatSpecMap**. For more information, see *Structure Translation Maps* (on page 184). (P2 CP:270943)
- Added information about the validation criteria used by **PDMS Import Validation**. Updated the **PDMS Properties Extractor** dialog box descriptions to reflect changes to the interface. For more information, see *PDMS Import Validation* (on page 72). (P2 CP:272650)
- Added the **WallComposition** and **WallCrossSection** structure models. For more information, see *PDMS Export Validation Dialog Box* (on page 51). (P2 CP:272976)
- The software now supports exporting Smart 3D member openings data to PDMS. For more information, see *Exporting Smart 3D Model Data* (on page 17). (P2 CP:277607)
- You can now customize the Smart 3D hierarchy before exporting it to PDMS. (P2 CP:300149)
 - The **ExportHierarchyAs** option controls how hierarchy information is written to the PDMS DATAL file. For more information, see *PDMS Export Initialization File Options in Configure the PDMS export initialization file* (on page 30).
 - The **PDMS Export Validation** command can now validate the hierarchy of the Smart 3D objects. For more information, see **Validation criteria** in the *PDMS Export Validation Dialog Box* (on page 51).
 - The **CustomizeS3DHierarchyMap** mapping sheet enables you to map the specific PDMS Zone and Site data under which Smart 3D objects are to be exported. For more information, see *CustomizeS3DHierarchyMap* (on page 129).
 - Added information about .ini settings when exporting Smart 3D hierarchy data to PDMS. For more information, see *Global in Limitations when exporting from Smart 3D to PDMS* (on page 27).
- Export of catalog and on-the-fly piping instruments and specialty components supports appending the piping specification in which the instrument or specialty component is defined to the PDMS **SPREF** attribute. For more information, see *CatalogSpecialtySPREFMap* (on page 139), *CatalogInstrumentSPREFMap* (on page 140), *OnFlySpecialtySPREFMap* (on page 140), and *OnFlyInstrumentSPREFMap* (on page 141). (P3 CP:241535)

- Added new information related to the exporting of Smart 3D walls to PDMS. (P3 CP:268522)
 - *PDMSWallAdditionalAttributes* (on page 158)
 - *WallCrossSectionMap* (on page 158)
 - *WallCSAdditionalAttributesMap* (on page 159)
 - *Wall_JUSL* (on page 159)
 - *StraightWallAttrMap* (on page 149)
 - *CurvedWallAttrMap* (on page 149)
 - *WallSystemAttrMap* (on page 149)
- The software now supports exporting Smart 3D wall composition data to PDMS. For more information, see *StructureGlobalsMap* (on page 156). (P3 CP:268522)
- Added a note to clarify how to map additional attributes in the **PipingDesParamAdditionalAttrMap** sheet. For more information, see *PipingDesParamAdditionalAttrMap* (on page 143). (P3 CP:271351)
- Clarified hierarchy export behavior. For more information, see *Configure the PDMS export initialization file* (on page 30). (P3 CP:284990)
- Added eight key points to consider when exporting Smart 3D model data. For more information, see the important note added to the *Best Practices* section in *Exporting Smart 3D Model Data* (on page 17). (P4 CP:257283)
- Work process diagrams have been added to clarify the tasks required when exporting Smart 3D models to PDMS. You can click a box in the diagram to go to the associated procedure. For more information, see *Export to PDMS Workflow*.
- Added new global and piping model limitations for the new .ini option **ExportSupportAs**. For more information, see *Limitations When Exporting from Smart 3D to PDMS* (on page 27) and *Configure the PDMS export initialization file* (on page 30). (P4 CP:284732)
- Added two piping translation map sheets to map additional attributes for PDMS pipe attachments and to map PDMS attachment SPREF attributes to Smart 3D support component part numbers. For more information, see *Map support components offset differences* (on page 104), *PipeSupportAdditionalAttributes* (on page 142), and *PipeSupportSPREFMap* (on page 142). (P4 CP:284732).

Import PDMS Design Data to Smart 3D

- If more than 50 shapes are present under an equipment or equipment component, all Simple Physical Aspect shapes are combined into a GType shape. Other aspect shapes are imported as intelligent S3D shapes. For more information, see *Limitations When Importing PDMS Design Data to Smart 3D* (on page 65). (P1 C:280614)
- The software now supports importing PDMS electrical cable tray designs into Smart 3D. For more information, see *Electrical Translation Maps* (on page 213). (P2 CP:209075)
- The *PDMS3DImportMapping.xls* workbook now distinguishes between missing entry types. For more information, see *Validate mapping details* (on page 76). (P2 CP:240423)
- The software now supports mapping the OBST attribute of PDMS in the *PDMS3DImportMapping* workbook *AspectMap* sheet. For more information, see *Equipment Translation Maps* (on page 173) and *AspectMap* (on page 174). (P2 CP:244783)

- The software supports direct import of PDMS .datal and .att files with different dimensional units into Smart 3D. The software supports import of the files from all versions of PDMS. During import, the software automatically converts the dimensional data to Smart 3D default units. If dimensional units are not defined in the imported PDMS .datal or .att file, the software uses *millimeters* as the default distance unit and *degree* as the default angle unit to convert PDMS dimensional units to Smart 3D default units. Previously, you had to manually remove the units before importing the files. (P2 CP:246578)
- New translation maps are added to the PDMSS3DImportMapping.xls workbook. (P2 CP:246578)
 - The **PipingGlobalsMap** sheet defines the global settings for importing a PDMS DATAL or .att file for the Piping discipline. This mapping sheet creates a single entry for global constants and replaces the functionality provided by the **PipingGlobalsMap_V11** and **PipingGlobalsMap_V12** sheets delivered in previous versions of the software. For more information, see *PipingGlobalsMap* (on page 180).
 - The **PDMSS3DFileConstants** sheet defines the PDMS constants that are present in the PDMS piping or HVAC .att file to relevant Smart 3D values. This mapping sheet replaces the functionality provided by the **PDMSS3DFileConstantsV12Above** and **PDMSS3DFileConstantsV12Below** sheets delivered in previous versions of the software. For more information, see *PDMSS3DFileConstants* (on page 184).
 - The **HVACGlobalsMap** sheet defines global settings for importing a PDMS DATAL or .att file for the HVAC discipline. This mapping sheet creates a single entry for global constants and replaces the functionality provided by the **HVACGlobalsMap_V11** and **HVACGlobalsMap_V12** sheets delivered in previous versions of the software. For more information, see *HVACGlobalsMap* (on page 204).
- The software now supports importing PDMS primitives that have negative primitives. For more information, see *Supported Object Types* (on page 61). (P2 CP:247976)
- Added a limitation that exists when importing PDMS primitives that have negative primitives. For more information, see *Equipment Models in Limitations When Importing PDMS Design Data to Smart 3D* (on page 65). (P2 CP:247976)
- The **UseMappingToCreateShapes** option has been updated. For more information, see *Equipment in Configure the PDMS import initialization file* (on page 67). (P2 CP:247976)
- You can now import openings on straight walls. For more information, see *Supported Object Types* (on page 61). (P2 CP:252255)
- To import structure model data, you must properly configure the data for PDMS walls. For more information, see *Limitations When Importing PDMS Design Data to Smart 3D* (on page 65) and *Define matching reference data* (on page 69). (P2 CP:252255)
- Added a best practice to map PDMS walls to Smart 3D walls. For more information, see *Map PDMS walls to Smart 3D walls* (on page 103). (P2 CP:252255)
- Added the following structure translation maps:
 - *SPSSlabEntityGWallMap* (on page 197)
 - *SPSWallSystemSTWallMap* (on page 197)
 - *SPSWallSystemWallMap* (on page 197)
 - *WallCardinalPointMap* (on page 201)
 - *WallCrossSecCompositionMap* (on page 201) (P2 CP:252255)

- The software now supports importing the openings on members. (P2 CP:260860)
- The software now supports importing a custom hierarchy from PDMS through mapping PDMS user-specified element types (UDET) and their properties to equivalent Smart 3D systems. User-defined element tags (UDET) are now called hierarchy element attributes, and **HierarchyElementAttrsMap** replaces **UDETAttributeMap**. For more information, see *Hierarchy Translation Maps* (on page 210). (P2 CP:262540)
- Added information about importing PDMS slabs into Smart 3D. For more information, see *Structure Models in Limitations When Importing PDMS Design Data to Smart 3D* (on page 65). (P2 CP:262600)
- The **ImportPDMSPanelsAsSlabs** option has been added to the PDMSImportTranslator.ini file. You can use this option to import the PDMS panels as slabs or plates into Smart 3D. For more information, see *Configure the PDMS import initialization file* (on page 67). (P2 CP:262601)
- Added a limitation for structure models for openings. For more information, see *Limitations When Importing PDMS Design Data to Smart 3D* (on page 65) (P2 CP:266768)
- Added limitations that exist when importing PDMS design data into Smart 3D. For more information, see *Limitations When Importing PDMS Design Data to Smart 3D* (on page 65). (P2 CP:267373)
- Added the **PlateThicknessDirMap** and **SlabFacePositionMap** structure translation maps. For more information, see *PlateThicknessDirMap* (on page 195) and *SlabFacePositionMap* (on page 196). (P2 CP:270204)
- Any weld listed as **NEW WELD** in the PDMS attribute file (*.att) is imported into Smart 3D as a Field Fitted Weld (FFW). For more information, see *Supported Object Types* (on page 61). (P2 CP:271527)
- The **ImportPDMSPanelsAsSlabs** option has been updated with new information. For more information, see *Globals in Configure the PDMS import initialization file* (on page 67). (P2 CP:272654)
- The software now imports all PDMS flow direction data (FORW, BACK, BOTH, and OFF) to the corresponding Smart 3D flow direction data (DOWNSTREAM, UPSTREAM, BI-DIRECTIONAL, and NO-FLOW, respectively). (P2 CP:275365)
- Added three new workbooks, **PDMS3DAllCommon.xls**, **PDMS3DStructSlabGeneral.xls**, and **PDMS3DStructSlabLayer.xls**, which must be bulkloaded to add a Smart 3D default slab part to the catalog. For more information, see *StructureSlabMatSpecMap* (on page 200). (P2 CP:277261)
- The location of the **PDMSPropertySchemaDefinition.xls** and **PDMSPropertyCodeLists.xls** workbooks has been changed. For more information, see *Bulk load the database* (on page 78). (P2 CP:277261)
- Added a piping model limitation when importing PDMS design data into Smart 3D. For more information, see *Limitations When Importing PDMS Design Data to Smart 3D* (on page 65). (P3 CP:243506)
- The software now imports attachments in PDMS as instruments, specialties, components, and supports in Smart 3D. For more information, see *Supported Object Types* (on page 61). (P3 CP:260161)

- A work process diagram has been added to clarify the tasks required when importing PDMS data to Smart 3D. You can click a box in the diagram to go to the associated procedure. For more information, see *Importing PDMS Design Data* (on page 60).

Mapping Best Practices

- The recommended steps for mapping PDMS piping and HVAC specifications to Smart 3D have been updated to support functional enhancements in the software. For more information, see *Map PDMS piping specifications to Smart 3D* (on page 97) and *Map PDMS HVAC specifications to Smart 3D* (on page 99). (P2 CP:246578)
- The **Best Practices** listed below have been added for this version of the software:
 - *Map cableway object placement mismatches for export* (on page 90) (P2 CP:260158)
 - *Map PDMS design parameters* (on page 95) (P2 CP:260610)
 - *Map cableway horizontal bends* (on page 104) (P2 CP:265169)
- The recommended steps for mapping Smart 3D wall composition data to PDMS have been added. For more information, see *Map Smart 3D walls to PDMS* (on page 93). (P3 CP:268522)
- We recommend that you set the units of the PDMS model to use the same units as the units used for the destination datal file that you want to import into Smart 3D. For example, if you want to import a datal file into Smart 3D that uses feet as the units, then we recommend that the PDMS model units should be feet.

SECTION 1

Exporting Smart 3D Model Data

You can export the following Smart 3D model data to Plant Design Management System (PDMS):

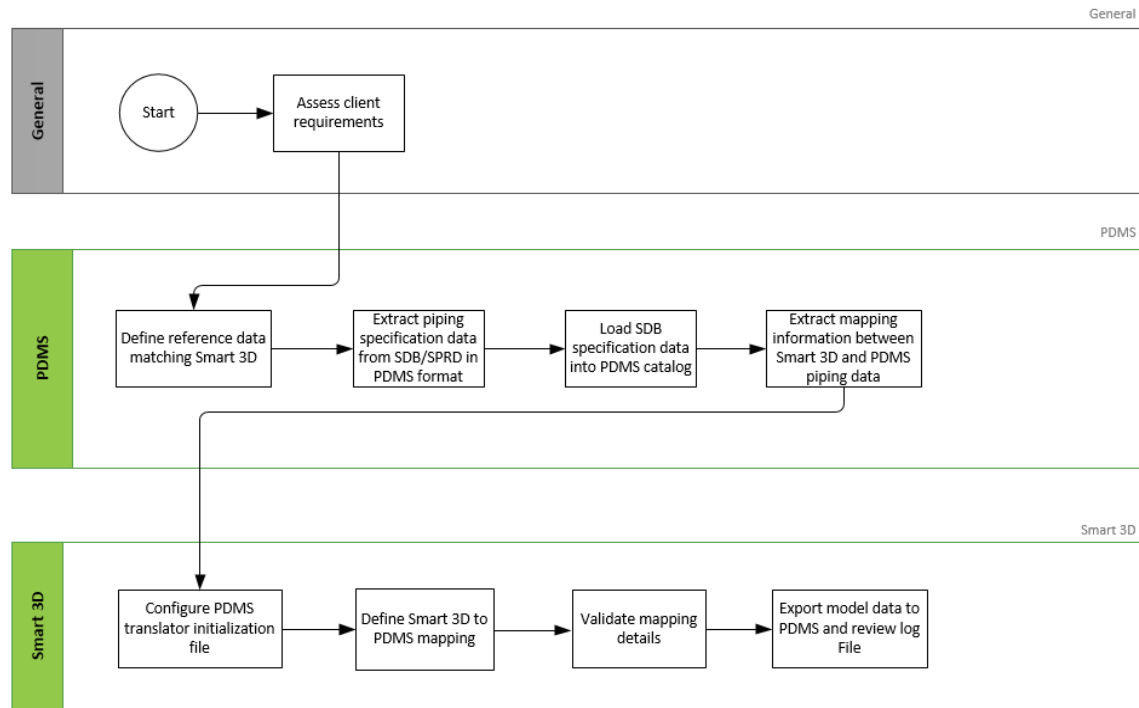
- Equipment
- Piping
- HVAC
- Hangers and Supports
- Electrical
- Structure

The export to PDMS process involves transferring Smart 3D objects and their attribute values to a PDMS datal file format. For information about the types of Smart 3D model data that you can export to PDMS, see *Supported Object Types* (on page 19).

NOTE **Smart 3D to PDMS Exporter** (SKBY534) is a separately purchasable product from Intergraph that you can add to a Smart 3D installation. Prior to installing **Smart 3D to PDMS Exporter**, verify that Smart 3D has first been installed.

Export to PDMS Workflow

The diagram below shows the recommend workflow for transferring model data from Smart 3D to PDMS. This workflow includes the steps you must take to get PDMS ready to receive data from Smart 3D.



What do you want to do?

- *Configure the PDMS export initialization file* (on page [30](#))
- *Define matching reference data* (on page 41)
- *Extract piping specification data from SDB/SPRD in PDMS format* (on page 46)
- *Load SDB specification data into PDMS catalog* (on page 47)
- *Extract mapping information between Smart 3D and PDMS piping data* (on page 48)
- *Validate Mapping Details* (on page 50)
- *Export Smart 3D Model Data to PDMS* (on page 56)

See Also

Supported Object Types (on page 19)

Points to Consider (on page 26)

Limitations When Exporting from Smart 3D to PDMS (on page 27)

Supported Object Types

Not all model data can be exported to PDMS. The tables below list the Smart 3D object types, by discipline, that are currently supported for export by the software.

Equipment Objects:

Smart 3D Object Type	PDMS Object Type	Export Options
Catalog equipment	Standard equipment	<ul style="list-style-type: none"> Mapping Breaking into primitives
Design equipment	Design equipment	Breaking into primitives
Catalog equipment component	Sub-equipment	Breaking into primitives
Design equipment component	Sub-equipment	Breaking into primitives
Shape	Primitive	<ul style="list-style-type: none"> Mapping Breaking into primitives
Imported shape from SAT or DGN files	Design equipment	Breaking into primitives
Design solid	Primitive	Breaking into primitives
Pipe nozzle	Nozzle	Mapping
HVAC nozzle	Nozzle	Mapping
Conduit nozzle	Nozzle	Mapping
Cable tray nozzle	Nozzle	Mapping

Piping Objects:

Smart 3D Object Type	PDMS Object Type	Comments
Pipeline system	Pipe	The specification attribute on the PDMS pipe object is controlled by the PipelineSpec option in the PDMSExportTranslator.ini file.
Pipe run	Branch	It is not necessary for both definitions to match exactly because a Smart 3D pipe run cannot contain components with multiple diameters, whereas the PDMS branch can. The MergeS3DRuns option in the PDMSExportTranslator.ini file combines all of the pipe runs under a Pipeline system and splits them into appropriate PDMS branches. Consequently, pipe run names in Smart 3D and branch names in PDMS differ.
Piping component	Relevant object in PDMS based on GType	The appropriate component is created based on the mapped GType of the component.
Gasket	Gasket	Gasket dimensions in PDMS should match those that are present in Smart 3D; otherwise, the isometric drawings generated from PDMS may fail.
Pipe support (logical)	Attachment	Pipe supports from Smart 3D are created as attachments which appear in the isometric drawings obtained from PDMS.
Pipe bend	Bend	Pipe bends from Smart 3D are exported as bend objects.

Smart 3D Object Type	PDMS Object Type	Comments
Underground and sanitary piping	FTUBE	Underground and sanitary piping; that is, piping that is plain-ended, is exported as FTUBE from Smart 3D. The relevant FTUBE components must be created in the PDMS catalog and mapped appropriately.

NOTE In addition to the piping object types listed in the above table, the required coding is written in the data1 file to establish connectivity of piping with equipment nozzles and the interconnectivity between branches.

Structure Objects:

Smart 3D Object Type	PDMS Object Type	Comments
<ul style="list-style-type: none"> Linear member part Curved member part 	<ul style="list-style-type: none"> Section Generic section 	<ul style="list-style-type: none"> PNODE, PJOINT, SNODE, SJOINT are created. PNODE, PJOINT, JLDATUM, PLDATUM, FITTING are created. <p>Connections between the SECTION and JOINTS are written to the PDMS data file.</p>
Openings on members	Negative extrusion	Openings on members are exported as negative extrusions under the TMPL element.
Slab	Floor	
Openings on slabs	Negative extrusion	Openings on slabs are exported as negative extrusions under the FLOOR element.
Wall	Wall	
Openings on wall	Negative primitives	Openings on walls are exported as negative primitives under the WALL element.

Smart 3D Object Type	PDMS Object Type	Comments
Stair, ladder, handrail (symbol based)	Structure with primitives	The software creates the appropriate primitives in PDMS during export.
Stair, ladder, handrail (converted design items)	Structure with intelligent items	The software creates the appropriate intelligent sections in PDMS during export.
Equipment foundation, footing	Structure	The software creates the appropriate primitives in PDMS during export.
Rectangular grid	Section	Will be and SCTN item with no SPREF so that it shows up as a hidden line.
Assembly connection components: <ul style="list-style-type: none"> Custom plate part Cuts on member part 	<ul style="list-style-type: none"> Panel Negative primitives 	
Insulation on member part	Fitting	The software optionally uses the mapping file or creates the appropriate primitives in PDMS during export.
Trim on member part	Negative primitives	
Plate part: <ul style="list-style-type: none"> Planar Curved 	<ul style="list-style-type: none"> Panel Sub-structure 	The software creates the appropriate primitives in PDMS during export.
Profile part: <ul style="list-style-type: none"> Linear Curved Twisted 	<ul style="list-style-type: none"> SCTN GENSEC SUBSTRUCTURE 	<p>All stiffener, edge reinforcement, and beam parts are profile parts.</p> <p>For twisted profile parts, the part is exported by breaking it into planes.</p>
Openings on plate	Negative extrusion	Openings on plate are exported as a negative extrusion under the PANEL element.

Smart 3D Object Type	PDMS Object Type	Comments
Built-up member components: <ul style="list-style-type: none"> Planar plate part Curved plate part 	Structure: <ul style="list-style-type: none"> Panel fitting Sub-structure 	The software creates the appropriate primitives in PDMS during export.
Hole fittings: <ul style="list-style-type: none"> Planar plate part Curved plate part 	<ul style="list-style-type: none"> Panel fitting Sub-structure 	The software creates the appropriate primitives in PDMS during export.

Hangers and Supports Objects

Smart 3D Object Type	PDMS Object Type	Comments
Standard support components	<ul style="list-style-type: none"> PCLAMP SCLAMP HELEMENT 	<ul style="list-style-type: none"> Pipe clamps in Smart 3D are created as PCLAMP. Structure clamps in Smart 3D are created as SCALMP. Other components are created as HELEMENT.
Design support components	<ul style="list-style-type: none"> PCLAMP SCLAMP HELEMENT 	<ul style="list-style-type: none"> Pipe clamps in Smart 3D are created as PCLAMP. Structure clamps in Smart 3D are created as SCALMP. Other components are created as HELEMENT.

HVAC Objects

Smart 3D Object Type	PDMS Object Type	Comments
Ducting system	HVAC	The specification attribute on the PDMS HVAC object is controlled by the HVACSpec option in the PDMSExportTranslator.ini file.
Generic system	HVAC	The specification attribute on the PDMS HVAC object is controlled by the HVACSpec option in the PDMSExportTranslator.ini file as there is no specification property on the Generic system in Smart 3D.
Duct run	BRANCh	It is not necessary for both definitions to match exactly because a Smart 3D duct run cannot contain run change components only at the ends of the run, whereas the PDMS branch can contain similar components in the middle of the branch. The MergeS3DDuctRuns option in the PDMSExportTranslator.ini file combines all of the duct runs under a Ducting system/Generic system and splits them into appropriate PDMS branches. Consequently, duct run names in Smart 3D differ from branch names in PDMS.
Duct component	Relevant object in PDMS based on GType	The appropriate component is created based on the mapped GType of the component.
Gasket	GASKet	Gasket dimensions in PDMS should match those that are present in Smart 3D. Otherwise, the isometric drawings generated from PDMS may fail.
Duct bend	BEND	Smart 3D duct bends are exported as bend objects in PDMS.

Smart 3D Object Type	PDMS Object Type	Comments
Duct support	ATTachment	Smart 3D duct supports are created as attachments which appear in the isometric drawings obtained from PDMS.
Design support	ATTachment	Smart 3D design supports are created as attachments which appear in the isometric drawings obtained from PDMS.

Electrical Objects

Smart 3D Object Type	PDMS Object Type	Export Options
Electrical system	PIPE	The specification attribute on the PDMS electrical object is controlled by the Electrical Spec option in the PDMSExportTranslator.ini.
Cable ways	BRANCh	
Electrical supports	ATTachment	Smart 3D electrical supports are created as attachments that appear in the drawings extracted from PDMS.
Conduit system	PIPE	The specification attribute on the PDMS electrical object is controlled by the Electrical Spec option in the PDMSExportTranslator.ini file.
Generic system	PIPE	The specification attribute on the PDMS electrical object is controlled by the Electrical Spec option in the PDMSExportTranslator.ini file because there is no specification property on the Electrical system in Smart 3D.
Conduit run	BRANCh	

Smart 3D Object Type	PDMS Object Type	Comments
Conduit component	ELECCOMP	The appropriate component is created based on the mapped GType of the component.
Cable tray component	ELECCOMP	The appropriate component is created based on the mapped GType of the component.

Points to Consider

When you export Smart 3D model data to PDMS, consider the key points listed below. For more information about recommended workflows regarding design and data exchange between Smart 3D and PDMS, including step-by-step examples, see *Best Practices* (on page 89).

- Follow the recommended naming conventions when modeling in Smart 3D:
 - Create a unique name for each modeled object so that no duplicates exist.
 - Make sure object names contain no spaces.
 - Make sure object names do not exceed 50 characters.

NOTES

- During export, if the software encounters a name that does not meet one of these conventions, it modifies the name before writing it to the DATAL file, resulting in mismatched object names between the two models.
- If an object name in Smart 3D contains a space, the software replaces the space with an underscore (_) character in PDMS.
- Include first level objects when exporting Smart 3D model data to PDMS: Equipment, Pipeline, Duct Run, Cableway/Cable tray/Conduit run, Member systems/Root plate system, and Support assembly.
- Export Smart 3D model data by discipline. Doing so reduces DATAL file size and assists in identifying and resolving export issues.
- Export model data using the following sequence of supported object types: Equipment, Piping, HVAC, Electrical, Structure, Hangers and Supports.
- Verify that the catalog component orientation in PDMS is correct before importing the DATAL file.
- When exporting Smart 3D model data, you must create equivalent UDETs (User Defined Element Types) with relationships before importing the hierarchy DATAL file into PDMS. For more information, see *Hierarchy Translation Maps* (on page 124).
- Set **Tolerance** values (in the PDMS **Piping Consistency Check** options) to maximum before importing the DATAL files. Doing so helps resolve issues related to port misalignment and sloped piping.
- Review the log file after each Smart 3D export for any errors or warnings.
- Review the log file generated during model data import to PDMS for any errors or warnings.

Limitations when exporting from Smart 3D to PDMS

The following limitations are known to exist when exporting Smart 3D piping, equipment, HVAC, hangers and supports, structure, and electrical data and then importing that data into PDMS.

Global

- When exporting a hierarchy, a recursive user-defined element type cannot be created in PDMS. For example, if a piping system (PIPE) is created once, it cannot be its own parent or child, but it can be a sibling.
- If you set the .ini option **ExportHierarchyAs** in the PDMSExportTranslator.ini file to **MULTI_SITE**, the PDMS software may not list some of the objects under the selected filter. To avoid this, we recommend that you select **Generate separate file for each discipline** in the **S3D PDMS Model Export** dialog box, and then export the filter.
- If you set the .ini option **ExportSupportsAs** in the PDMSExportTranslator.ini file to **ATTACHMENT_MAPPING**, and if the support is connected to any structural member in Smart 3D, then no connection is established with the structural member in PDMS.
- The number of pipe attachments exported to PDMS is greater than the number of supports in Smart 3D because mapping is performed at the support component level.

Equipment Models

- If the catalog is not set up or if mapping is not provided for an object, the software breaks the object into GTypes and objects and then exports them as primitives. As such, the equipment item may be difficult to modify after it is imported into PDMS.
- Imported shapes are placed under a sub-equipment element (SUBE), but they should be treated as primitives because they are shapes in Smart 3D.
- In the current release of the software, the catalog equipment component is transferred only through GTypes. Mapping is not supported.

Piping Models

- Because there is no concept of on-the-fly specialty components and on-the-fly instruments in PDMS, these Smart 3D piping objects must be created as explicit components in PDMS. It is assumed that there is one on-the-fly specialty component or instrument for every different end preparation, pressure rating, schedule thickness, and end standard.
- By default, supports are exported only as logical supports. If the .ini option **ExportSupportsAs** available in the PDMSExportTranslator.ini file is set to **ATTACHMENT_MAPPING**, then supports are exported as PDMS pipe attachments in the PDMS piping isometric drawing output. The pipe attachments have the physical geometry of the supports.
- No bolt sets or washers from the model are transferred from Smart 3D to PDMS. These are considered implied items and the catalog should be set up properly before the export process is started. Bolt lengths, bolt diameters, and number of bolts should match the Smart 3D data.

Structure Models

- The software sets the attribute for JLine and MLine on sections and joints to **NA** (Neutral Axis) by default.
- Cuts on members and objects created during assembly connections are exported as fittings. Negative geometries are created for cuts, and panels are created for additional objects.
NOTE Export using catalog joints is not supported in the current release of the software.
- The software breaks stair, ladder, and handrail symbols, as well as footing and equipment foundation objects into GTypes and exports them as primitives under the STRUCTURE element.
- The software breaks stair, ladder, and handrail items that have been converted to intelligent structural objects into equivalent intelligent items under the STRUCTURE element.
- Curved plate parts on both plate systems and built-up members are exported as smaller triangular planes which make-up the total curved surface.
- The hole fitting object on the planar plate part is exported as a panel fitting under the PANEL element (planar plate part). Curved plate parts are exported as SUBSTRUCTURE, because the PANEL element is not created for a curved plate part.
- Openings, trim, corner, and end cut features on the profile part are not exported.
- Twisted stiffeners are exported by breaking the profile part into primitives and exporting them under the SUBSTRUCTURE element.

Hanger and Support Models

- If the catalog is not set up or if mapping is not provided for all hanger and support Components present in Smart 3D, then the software breaks the object into GTypes and exports them as primitives.
- Because the export of hanger and support model data is dependent on structure model data, the structure model data must be imported into PDMS before the hanger and support model data.

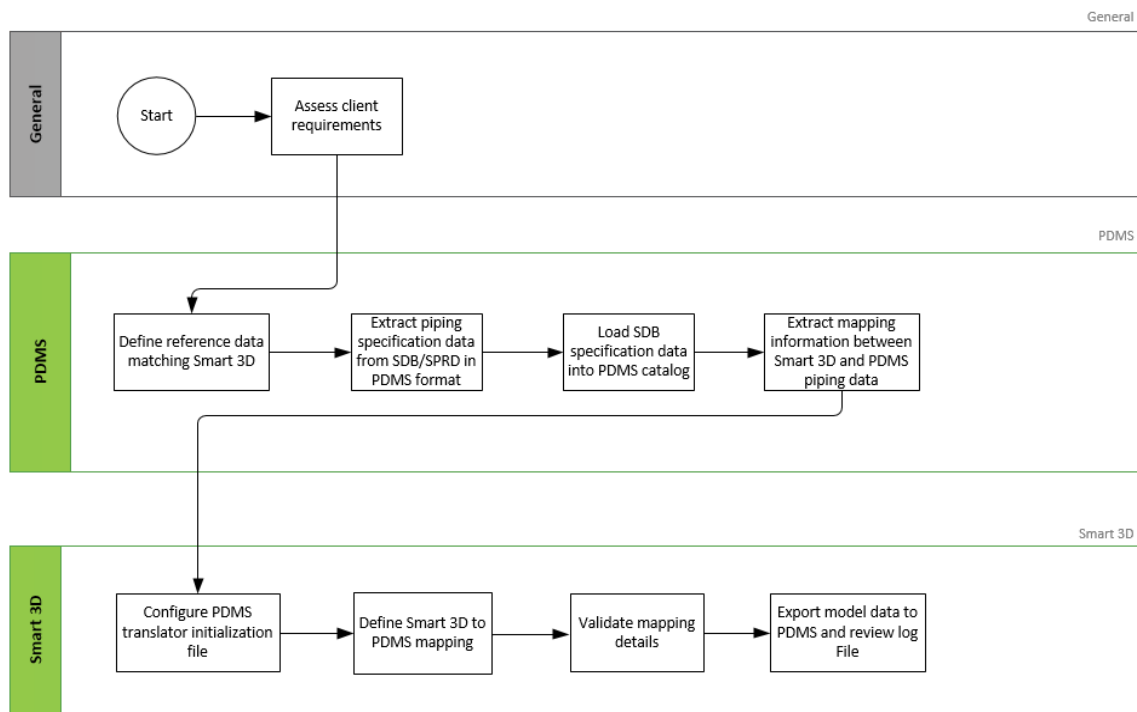
HVAC Models

- Supports are exported only as logical supports and appear as attachments in the PDMS isometric drawing output.
- No bolt sets or washers from the model are transferred from Smart 3D to PDMS. These are considered implied items and the catalog should be set up properly before the export process is started. Bolt lengths, bolt diameters, and number of bolts should match the Smart 3D data.

Electrical Models

- If the catalog is not set up or if mapping is not provided for an object, the software breaks all electrical objects into GTypes, and exports them as equipment objects for space reservation purposes only. Consequently, an equipment item from PDMS can be difficult to modify after it is imported.
- Imported geometries are placed under a sub-equipment element. The behavior of the imported data can be correlated to equipment designs of electrical objects.

Configure the PDMS export initialization file



The PDMS export initialization file (PDMSExportTranslator.ini) controls the export of Smart 3D model data to PDMS. You can modify the default values to suit your specific project requirements.

1. In **Windows Explorer**, browse to the *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDMSExport* folder.
2. Open the PDMSExportTranslator.ini file, and modify the options as needed. For more information, see *PDMS export initialization file options* (on page 30).
3. Save your changes.

NOTE SharedContent is delivered in the Smart 3D Reference Data setup.

PDMS export initialization file options

The PDMSExportTranslator.ini file is divided based on the discipline, such as piping, HVAC, structure, and so on. Each section contains a specific set of default options that are used during export.

Globals

In general, .ini options in the global section are applicable to all disciplines.

CreatePDMSLogFile

Generates an error log during import into PDMS.

- **0** - Suppress generation of an error log file.
- **1** - Generate an error log file. The log file is saved to the PDMS Error Log file path, which is created in the %PDMSUSER% file path on the PDMS computer. This is the default value.

DeveloperLogging

Creates the end-user or detailed developer log file.

- **0** - Create end-user logging. This is the default value.
- **1** - Create developer logging.

DumpUnitstoDataI

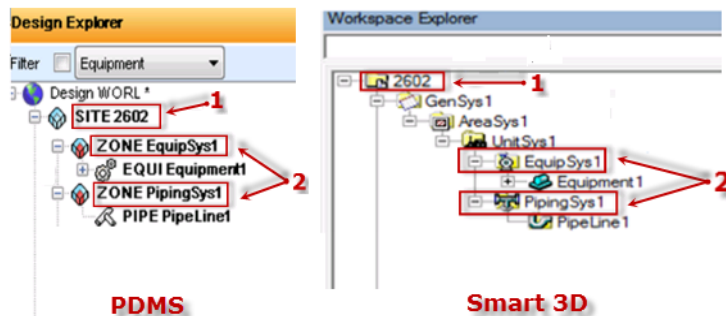
Writes the units to the DATAL file.

- **0** - Units are not dumped to the DATAL file. This is the default value.
- **1** - All values are written to the DATAL file per the units specified in the mapping file.

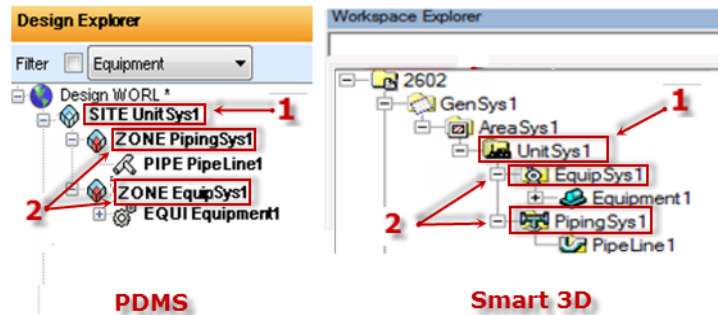
ExportHierarchyAs

Controls the hierarchy information written to the DATAL file.

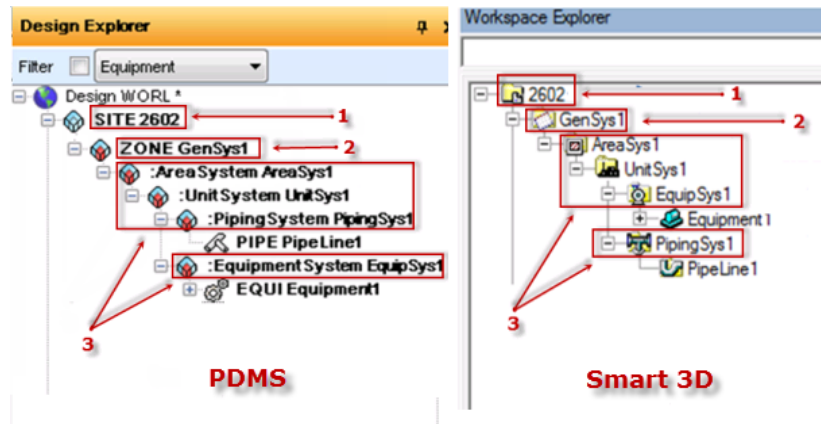
- **SINGLE_SITE** - Creates a single site, with SITE in PDMS defined as the Smart 3D ProjectConfigRoot (1) and ZONE defined as the immediate parent of the Smart 3D object being processed (2).



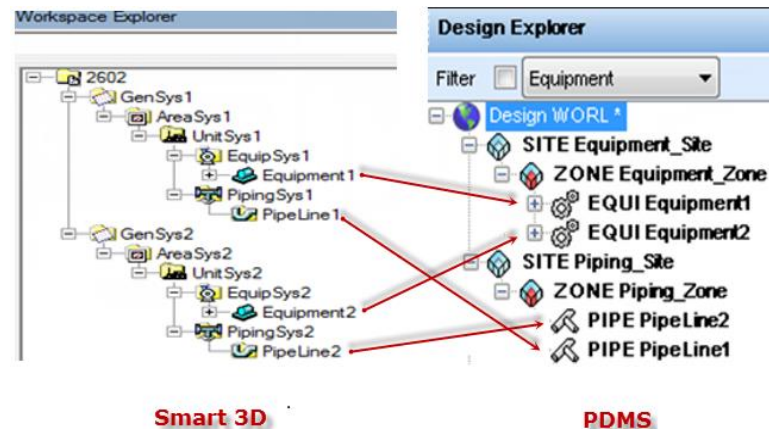
- **MULTI_SITE** - Creates multiple sites, with SITE in PDMS defined as the grandparent (1) and ZONE defined as the parent of the Smart 3D object being processed (2). This is the default value.



- **UDET_MAPPING** - Creates a separate file to export the Smart 3D hierarchy to PDMS, with SITE in PDMS defined as the Smart 3D ProjectConfigRoot (1) and ZONE defined as the system just below Smart 3D ProjectConfigRoot (2). The remainder of the exported hierarchy is defined as mapped UDETs (3).



- **HIER_MAPPING** - Creates a separate file to export the Smart 3D hierarchy to PDMS. During export, the software uses the user-specified mapped values for SITE and ZONE. For more information, see *CustomizeS3DHierarchyMap* (on page 129).



ExportOption

Determines which objects are written to the DATAL file.

- **ALL** - Write all objects in the selected filter to the DATAL file. This is the default value.
- **MODIFIED** - Write only the modified objects in the selected filter to the DATAL file.

ExportSupportsAs

Determines whether supports are exported as piping attachments or as hangers and supports.

- **GTYPE** - Exports all supports as supports through Gtypes. This is the default value.
- **SUPPORT_MAPPING** - Exports all supports as supports through mapping.
- **ATTACHMENT_MAPPING** - Exports all supports as pipe attachments through mapping.

Precision

Provides the precision for rounding position coordinates.

- **Value** - Type the number of digits to round the position coordinates, ideally in range 0 to 6. The default value is 3.

Equipment**DumpNozzleUnderSubEquipment**

Determines whether a sub-equipment node is created in the PDMS hierarchy for placement of equipment nozzles.

- **0** - Suppress the creation of a sub-equipment node. All nozzles are placed under the equipment node. This is the default value
- **1** - Create a sub-equipment node, and place all nozzles under it.

DumpShapeUnderSubEquipment

Determines whether a sub-equipment element is created in the PDMS hierarchy for placement of shapes equipment.

- **0** - Suppress the creation of a sub-equipment node. All shapes are placed under the equipment node. This is the default value.
- **1** - Create a sub-equipment node, and place all shapes under it.

ExportSimpleGeometry

Controls whether the geometry of the equipment is simplified and before being transferred into PDMS.

- **0** - Transfer equipment shapes as shown. This is the default value.
- **1** - Simplify equipment shapes before transfer. The holes on complex surfaces are removed and the outer boundaries are truncated to straight lines or a single circular arc. Holes are removed from cones, cylinders, torus, spheres, and plane objects in Smart 3D equipment.

IgnoreIndependentPlane

Controls how independent planes are handled during export. Independent planes are usually caps on projections, extra planes in equipment foundation, and so on. These planes do not affect the graphical output, but they do appear as additional objects in the PDMS workspace.

- **0** - Process independent planes. This is the default value.
- **1** - Ignore processing of independent planes.

MaximumEdgeLengthForComplexSurfacesRangeBox

Defines the maximum edge length for the range box of the complex geometry that cannot be simplified for export to PDMS. This option is useful for transferring complex geometries, such as b-spline surfaces, ruled surfaces, non-linear and non-orthogonal projections, and complex revolutions. If the value is large, no complex geometry is transferred.

ExportSimpleGeometry must be set to **1**.

- **Value** - Type a number (in mm) with minimum value 10. The default value is 25.

SurfaceQualityForBSplineSurface

Controls the fineness and surface quality for complex surfaces. Finer surface quality affects performance during export and import of the complex surface.

- **COARSE** - Poor surface quality with best performance.
- **MEDIUM_COARSE** - Moderate surface quality with better performance. This is the default value.
- **MEDIUM_FINE** - Better surface quality with moderate performance.
- **FINE** - Best surface quality with poor performance.

SurfaceQualityForDesignSolid

Controls the fineness and surface quality for design solids. Finer surface quality affects performance during export and import of the complex surface.

- **COARSE** - Poor surface quality with best performance.
- **MEDIUM_COARSE** - Moderate surface quality with better performance. This is the default value.
- **MEDIUM_FINE** - Better surface quality with moderate performance.
- **FINE** - Best surface quality with poor performance.

ToleranceForPlanesHavingCurvedBoundaries

Controls how the software handles curved boundaries during import. PDMS does not support planes with curved boundaries. During export, these curved boundaries are approximated to small lines. By specifying the angle of the arc, you can approximate an arc to a line. The lesser the angle specified, the smoother the plane boundary obtained in PDMS.

- **Value** - Type a number (angle in degrees) in range 5-30. The default value is 5.

UseMappingToCreateCatalogEquipment

Determines whether catalog equipment is exported through mapping or by breaking them into GTypes and creating the appropriate primitives in PDMS.

- **0** - Break catalog equipment into GTypes and create appropriate primitives in PDMS. If any errors occur, the software uses the mapping file as an alternative for creating corresponding equipment. This is the default value.
- **1** - Export catalog equipment using the mapping file. If any mapping is missing for any catalog equipment, the software breaks the catalog equipment into GTypes and creates the appropriate primitives in PDMS.

UseMappingToCreateShapes

Determines whether shapes are exported through mapping or by breaking them into GTypes and creating the appropriate primitives in PDMS.

- **0** - Break shapes into GTypes and create appropriate primitives in PDMS. If any errors occur, the software uses the mapping file as an alternative for creating corresponding primitives.
- **1** - Export shapes using the mapping file. If any mapping is missing for any shape, the software breaks the shape into GTypes and creates the appropriate primitives in PDMS. This is the default value.

Piping**GenerateSeparateFileForPipingConnections**

Controls if a separate file is written for piping connections in the model. After all piping data is imported into PDMS, these connection files can be collected and then run to create connections. This reduces the effort spent in the filter creation stage so that lesser dependencies are created.

- **0** - Write connections in the same file as the output file.
- **1** - Write connections in a separate file as the output file. Names of the new files are appended with "_PipingConnections." This is the default value.

MergeS3DRuns

Controls how branches are exported to PDMS.

- **0** - Create one branch in PDMS per Smart 3D pipe run.
- **1** - Merge Smart 3D pipe runs, and export as per PDMS's definition. This is the default value.

PipelineSpec

Controls what value is output in the DATAL file for the **PSPE** attribute on the pipeline.

- **MAX_OCCURRENCES** - Output the specification used by the maximum number of runs under the pipeline. This is the default value.
- **FIRST_OCCURRENCE** - Output the specification used by the first run under the pipeline.
- **MAPPING** - Output the specification using the mapping file (either ProgID or Label).

Structure

ExportCutBackGeometryUnderMembers

Specifies whether cutback geometry under members is exported to the DATAL file.

- **0** - Suppress exporting cutback geometry to the DATAL file.
- **1** - Export cutback geometry to the DATAL file. The software only exports the cutback geometry if the member part is to be cut by the operator. Otherwise, the software skips the operator cutback geometry during export. This is the default value.

ExportSimpleGeometry

Controls whether the geometry of the structure, such as stairs, ladders, and handrails (as symbols), as well as equipment foundations and footings, is simplified before being transferred into PDMS.

- **0** - Transfer structural objects as shown. This is the default value.
- **1** - Simplify structural objects before transfer. The holes on complex surfaces are removed and the outer boundaries are truncated to straight lines or a singular circular arc.

ExportTwistedStiffeners

Export the twisted stiffener parts in the Smart 3D models as primitives.

- **0** - Do not export twisted stiffener parts.
- **1** - Export twisted stiffener parts as GTypes. This is the default value.

GenerateSeparateFileForStructuralConnections

Controls if a separate file is written for connections for structural members and joints in the model. After all structural data is imported into PDMS, these connection files can be collected and then run to create connections. This reduces the effort spent in the filter creation stage so that lesser dependencies are created.

- **0** - Write connections in the same file as the output file.
- **1** - Write connections in a separate file from the output file. Names of the new files are appended with "_StructuralConnections." This is the default value.

IgnoreIndependentPlane

Controls how independent planes are handled during export. Independent planes are usually caps on projections, extra planes in equipment foundation, and so on. These planes do not affect the graphical output, but they do appear as additional objects in the PDMS workspace.

- **0** - Process independent planes. This is the default value.
- **1** - Ignore processing of independent planes.

MaximumEdgeLengthForComplexSurfacesRangeBox

Defines the maximum edge length for the range box of the complex geometry that cannot be simplified for export to PDMS. This option is useful for transferring complex geometries, such as b-spline surfaces, ruled surfaces, non-linear and non-orthogonal projections, and complex revolutions. If the value is large, no complex geometry is transferred.

ExportSimpleGeometry must be set to **1**.

- **Value** - Type a number (in mm) with minimum value 10. The default value is 25.

SurfaceQualityForBSplineSurface

Controls the fineness and surface quality for complex surfaces. Finer surface quality affects performance during export and import of the complex surface.

- **COARSE** - Poor surface quality with best performance.
- **MEDIUM COARSE** - Moderate surface quality with better performance. This is the default value.
- **MEDIUM FINE** - Better surface quality with moderate performance.
- **FINE** - Best surface quality with poor performance.

SurfaceQualityForCurvedPlate

Controls the fineness and surface quality for curved plates and twisted stiffeners. Finer surface quality affects performance during export and import of the complex surface. This option is valid only in Marine mode.

- **COARSE** - Poor surface quality with best performance.
- **MEDIUM_COARSE** - Moderate surface quality with better performance. This is the default value.
- **MEDIUM_FINE** - Better surface quality with moderate performance.
- **FINE** - Best surface quality with poor performance.

ToleranceForPlanesHavingCurvedBoundaries

Controls how the software handles curved boundaries during import. PDMS does not support planes with curved boundaries. During export, these curved boundaries are approximated to small lines. By specifying the angle of arc, you can approximate an arc to a line. The lesser the angle specified, the smoother the plane boundary obtained in PDMS.

- **Value** - Type a number (angle in degrees) in range 5-30. The default value is 5.

ToleranceForMemberCutGeometry

Provides a balance between performance and the quality of the imported model. When cut geometry is encountered during export, the software breaks the surfaces into small planes, which are used to create a negative solid polyhedron. The more planes that are created, the smoother the surface, which can adversely impact the amount of time required to import the model into PDMS. You can adjust the value as necessary to compromise between performance and smoothness.

- **Value** - Type a number in range 5 to 70. The default value is 5.

TransferInsulationAsGTypes

Determines whether insulation on members is exported through mapping or by breaking into GTypes and creating appropriate primitives in PDMS.

- **0** - Transfer insulation on members as mapped objects.
- **1** - Transfer insulation on members as GTypes. This is the default value.

Supports**ExportSimpleGeometry**

Controls whether the geometry of a support is simplified before being transferred into PDMS.

- **0** - Transfer supports as shown. This is the default value.
- **1** - Simplify supports before transfer. The holes on complex surfaces are removed and the outer boundaries are truncated to straight lines or a singular circular arc.

GenerateSeparateFileForSupportsConnections

Determines whether support connections need to be exported through mapping or by breaking them into GTypes and creating appropriate primitives in PDMS.

- **0** - Transfer supports connections in the same data file in which Supports are transferred.
- **1** - Transfer supports connections in a separate file. This is the default value.

MaximumEdgeLengthForComplexSurfacesRangeBox

Defines the maximum edge length for the range box of the complex geometry that cannot be simplified for export to PDMS. This option is useful for transferring complex geometries, such as b-spline surfaces, ruled surfaces, non-linear and non-orthogonal projections, and complex revolutions. If the value is large, no complex geometry is transferred.

ExportSimpleGeometry must be set to **1**.

- **Value** - Type a number (in mm) with minimum value 10. The default value is 25.

SurfaceQualityForBSplineSurface

Controls the fineness and surface quality for complex surfaces. Finer surface quality affects performance during export and import of the complex surface.

- **COARSE** - Best performance with poor surface quality.
- **MEDIUM COARSE** - Better performance with moderate surface quality. This is the default value.
- **MEDIUM FINE** - Moderate performance with improved surface quality.
- **FINE** - Poor performance with best surface quality.

ToleranceForPlanesHavingCurvedBoundaries

Controls how the software handles curved boundaries during import. PDMS does not support planes with curved boundaries. During export, these curved boundaries are approximated to small lines. By specifying the angle of the arc, you can approximate an arc to a line. The lesser the angle specified, the smoother the plane boundary obtained in PDMS.

- **Value** - Type a number (angle in degrees) in range 5-30. The default value is 30.

HVAC**GenerateSeparateFileForHVACConnections**

Controls whether to write connection information in the same data file where model data is written or in a separate file.

- **0** - Write HVAC connection information in the same data file where model data is written.
- **1** - Write HVAC connection information in a separate data file. This is the default value.

HVACSpec

Controls what value is output in the data file for the **PSPE** attribute on the HVAC.

- **MAX_OCCURRENCES** - Output the specification used by the maximum number of runs under the DuctingSystem / GenericSystem. This is the default value.
- **FIRST_OCCURRENCE** - Output the specification used by the first run under the DuctingSystem / GenericSystem.
- **MAPPING** - Output the specification using the mapping file (either ProgID or Label).

MergeS3DDuctRuns

Controls how branches are exported to PDMS.

- **0** - Create one branch in PDMS per Smart 3D duct run.
- **1** - Merge Smart 3D duct runs, and export as per PDMS definition. This is the default value.

Electrical**DumpRangeBox**

Determines which object information is dumped.

- **0** - Dump the true geometry of the object.
- **1** - Dump the range box data of the object. This is the default value.

ElectricalSpec

Controls what value is output in the data file for the **PSPE** attribute on Electrical runs.

- **MAX_OCCURRENCES** - Output the specification used by the maximum number of runs under the ElectricalSystem. This is the default value.
- **FIRST_OCCURRENCE** - Output the specification used by the first run under the ElectricalSystem.
- **MAPPING** - Output the specification using the mapping file (either ProgID or Label).

ExportSimpleGeometry

Controls whether the geometry of electrical cable trays and conduit runs is simplified before being transferred into PDMS.

- **0** - Transfer electrical cable trays and conduit runs as shown. This is the default value.
- **1** - Simplify electrical cable trays and conduit runs before transfer.

GenerateSeparateFileForElectricalConnections

Controls if a separate file is written for electrical connections in the model. After all electrical data is imported into PDMS, these connection files can be collected and then run to create connections. This reduces the effort spent in the filter creation stage so that fewer dependencies are created.

- **0** - Write connections in the same file as the output file.
- **1** - Write connections in a separate file as the output file. Names of the new files are appended with "_ElectricalConnections." This is the default value.

IgnoreIndependentPlane

Controls how independent planes are handled during export. Independent planes are usually caps on projections, extra planes in equipment foundations, and so on. These planes do not affect the graphical output, but they do appear as additional objects in the PDMS workspace.

- **0** - Process independent planes. This is the default value.
- **1** - Ignore processing of independent planes.

MaximumEdgeLengthForComplexSurfacesRangeBox

Defines the maximum edge length for the range box of the complex geometry that cannot be simplified for export to PDMS. This option is useful for transferring complex geometries, such as b-spline surfaces, ruled surfaces, non-linear and non-orthogonal projections, and complex revolutions. If the value is large, no complex geometry is transferred.

ExportSimpleGeometry must be set to **1**.

- **Value** - Type a number (in mm) with minimum value 10. The default value is 25.

SurfaceQualityForBSplineSurface

Controls the fineness and surface quality for complex surfaces. Finer surface quality affects performance during export and import of the complex surface.

- **COARSE** - Poor surface quality with best performance.
- **MEDIUM_COARSE** - Moderate surface quality with better performance. This is the default value.
- **MEDIUM_FINE** - Better surface quality with moderate performance.
- **FINE** - Best surface quality with poor performance.

ToleranceForPlanesHavingCurvedBoundaries

Controls how the software handles curved boundaries during import. PDMS does not support planes with curved boundaries. During export, these curved boundaries are approximated to small lines. By specifying the angle of the arc, you can approximate an arc to a line. The lesser the angle specified, the smoother the plane boundary obtained in PDMS.

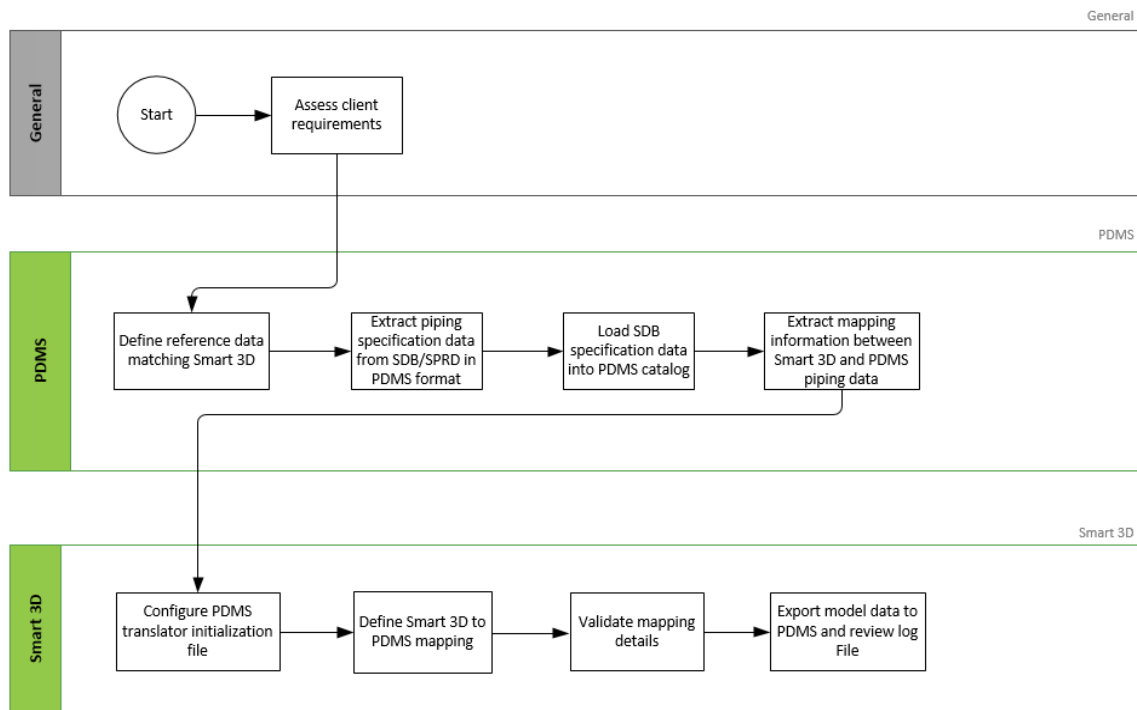
- **Value** - Type a number (angle in degrees) in range 5-30. The default value is 5.

TransferAsGTypes

Determines whether electrical cable trays and conduit runs are transferred using mapping or as GTypes.

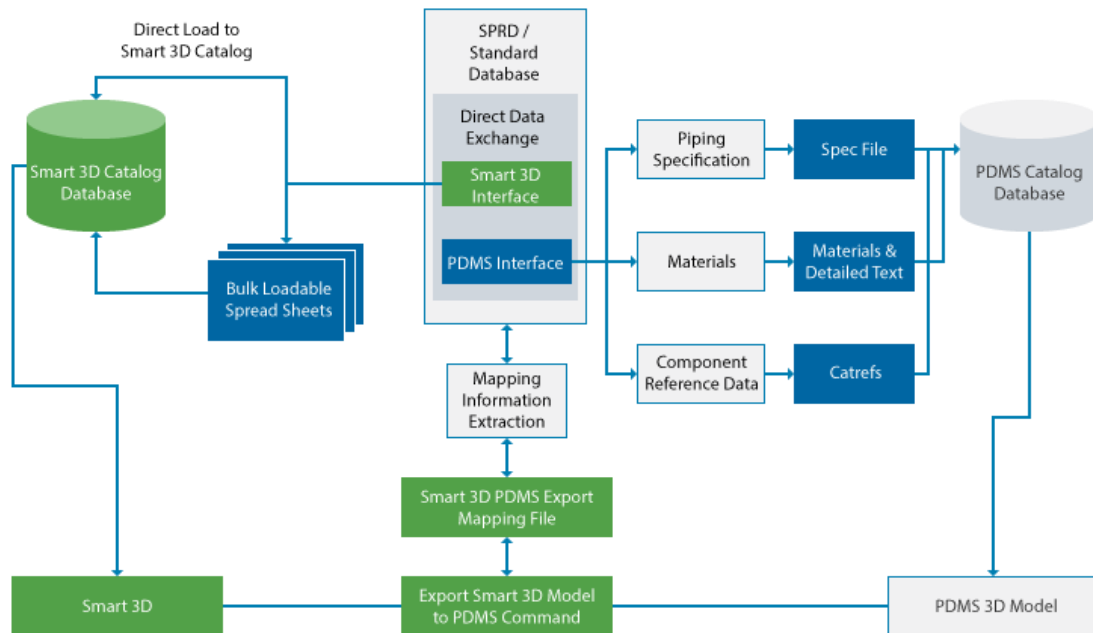
- **0** - Transfer using mapping.
- **1** - Transfer as GTypes. EQUIPMENT is created for the run, and the parts are dumped as SUBEquipment. This is the default value.

Define matching reference data



Prior to exporting Smart 3D model data, a catalog with corresponding objects, parts, and specifications must exist in PDMS. You can extract piping catalogs and reference data in Smart 3D and PDMS formats, and associate the mapping between the two formats. You can generate piping catalog and reference data simultaneously in either of the formats. The flow diagram below illustrates the parallel generation process for PDMS export.

NOTE You must have a SmartPlant Materials 2011 (7.0.5) license to extract piping specifications from the standard database (SDB).



For a successful export, ensure that the PDMS catalog meets the criteria outlined below.

Equipment Model Data

- The PDMS catalog must contain the same equipment shapes and nozzles that exist in the Smart 3D catalog.
- To export catalog equipment using a mapping file, the Smart 3D symbol definition template must also be present in the PDMS catalog.
- To export nozzles, all nozzle data must exist in the PDMS catalog prior to export and must match the nozzle data in the Smart 3D catalog.
- You must provide mapping information for any new shape. The shape in PDMS must be an exact match of the shape in Smart 3D.

Piping Model Data

- All of the piping specifications that are used in the Smart 3D project must also exist in the PDMS project.
- All of the applicable components used in a piping specification must be present in the PDMS catalog and must match those in the Smart 3D catalog. Component properties and dimensional data must also match between the two catalogs.
- All end preparations must be set up in the PDMS catalog, as well as the applicable connection compatibility (COCO) tables.
- All of the piping specialties and instruments of both the catalog and on-the-fly types must be set up in PDMS as either PCOMP or INST. Their dimensional data must match that of the components in the Smart 3D catalog.
- All gaskets and welds with exact thickness must be set up and available in the PDMS catalog.
- Insulation and tracing specifications must be set up the same in both catalogs.
- Bolt sets in the PDMS catalog must match those in the Smart 3D catalog. Any difference between these two sets of data adversely impact how bolts are reported in the isometric drawing output. Bolt and washer model data are not exported to PDMS and are treated as implied items by the export process.

HVAC Model Data

- All of the HVAC specifications that are used in the Smart 3D project must also exist in the PDMS project.
- All of the applicable components used in a HVAC specification must be present in the PDMS catalog and must match those in the Smart 3D catalog. Component properties and dimensional data must also match between the two catalogs.
- All end preparations must be set up in the PDMS catalog.
- All gaskets and welds with exact thickness must be set up and available in the PDMS catalog.
- Insulation and tracing specifications must be set up the same in both catalogs.
- Bolt sets in the PDMS catalog must match those in the Smart 3D catalog. Any difference between these two sets of data adversely impacts how bolts are reported in the isometric drawing output. Bolt and washer model data are not exported to PDMS and are treated as implied items by the export process.

Structure Model Data

- To export members, the dimensions, properties, and cardinal points of the cross-section in the PDMS catalog must match those in the Smart 3D catalog. This criteria only applies for Marine mode.
- To export insulation on members using mapping, an exact match for the encasement must be present in the PDMS catalog. For each cross-section type, a corresponding PDMS catalog fitting must be present; the geometry of the catalog fitting should match exactly with the insulation encasement for that particular cross-section type. This criteria only applies for Marine mode.
- To export the material property on a structure object, each applicable material in the Smart 3D catalog must be mapped to the appropriate material in the PDMS catalog.
- To export a material property, you must provide mapping for any new structural catalog object in Smart 3D. Mapping for default supported objects, such as stairs, ladders, handrails, footings, equipment foundations, and hole fittings, is already provided if these are to only be primitives in the PDMS project.
- To export profile parts, the dimensions, properties, and cardinal points (with Load Points in Smart 3D) of the cross section in the PDMS catalog must match those in the Smart 3D catalog. This criteria only applies for Marine mode.

Hangers and Support Model Data

To transfer hangers and supports by mapping, the PDMS catalog should be exactly the same as the Smart 3D catalog. Otherwise there are mismatches in the geometry and orientation of the transferred support components.

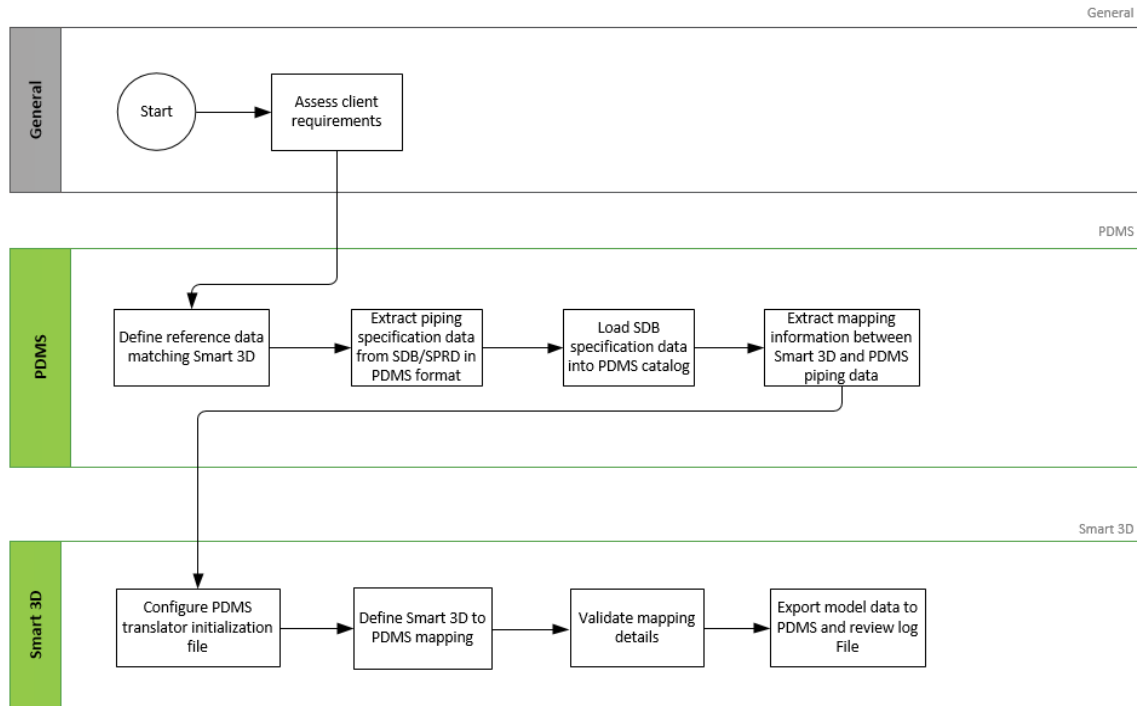
Electrical Model Data

- All of the electrical specifications that are used in the Smart 3D must also exist in the PDMS project.
- All of the components used in an electrical specification must be present in the PDMS catalog and should match those in the Smart 3D catalog. Component properties and dimensional data must also match between the two catalogs.
- Insulation and tracing specifications must be the same in both catalogs.

See also

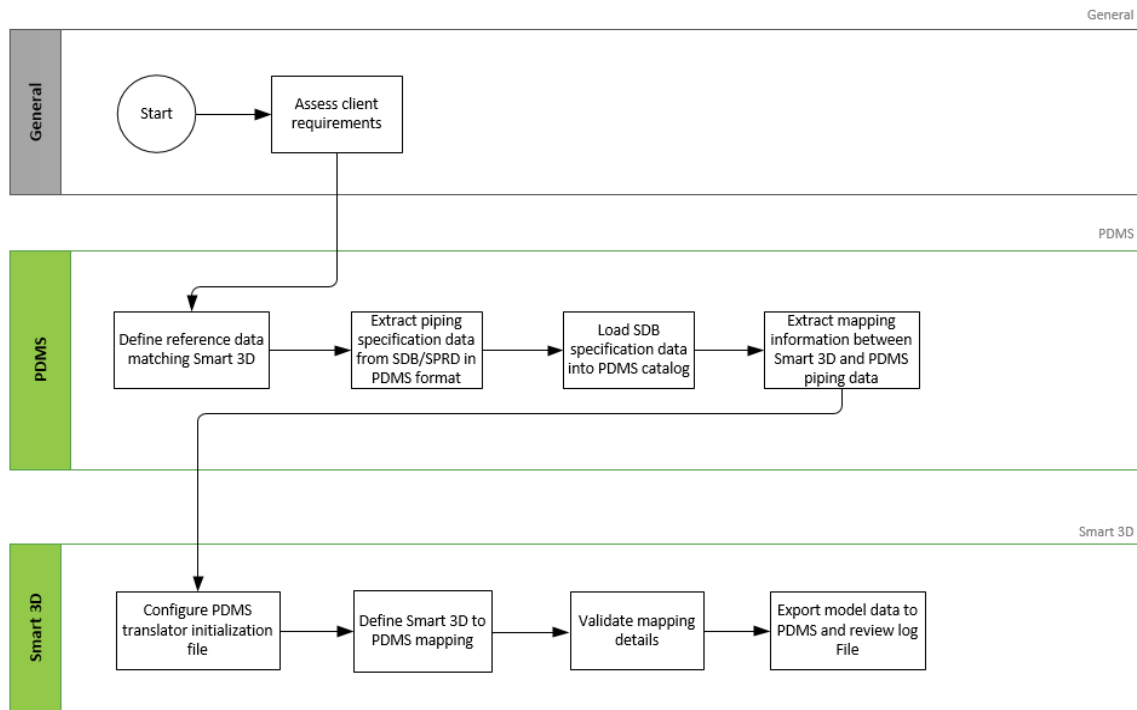
Project Creation Estimates (on page 87)

Extract piping specification data from SDB/SPRD in PDMS format



Any piping specification data can be extracted in PDMS format from the standard database. Extracted specification data can be loaded into the PDMS catalog using the PDMS PARAGON module. For more information on the integration procedure, see *SmartPlant Reference Data PDMS Interface User's Guide*, which is delivered with the SmartPlant Materials software.

Load SDB specification data into PDMS catalog



When the piping specification is extracted from the SDB in PDMS format, piping specification data generates materials, detailed text, specification, and component CATRef link files. These files should be loaded into the PDMS catalog in the order specified below using the PDMS PARAGON module. For more information on the integration procedure, see *SmartPlant Reference Data PDMS Interface User's Guide*, which is delivered with the SmartPlant Materials software.

PDMS format files to load	Loading order
Materials file	1
Detailed text file	2
Specification file	3
Component CATRef link file	4

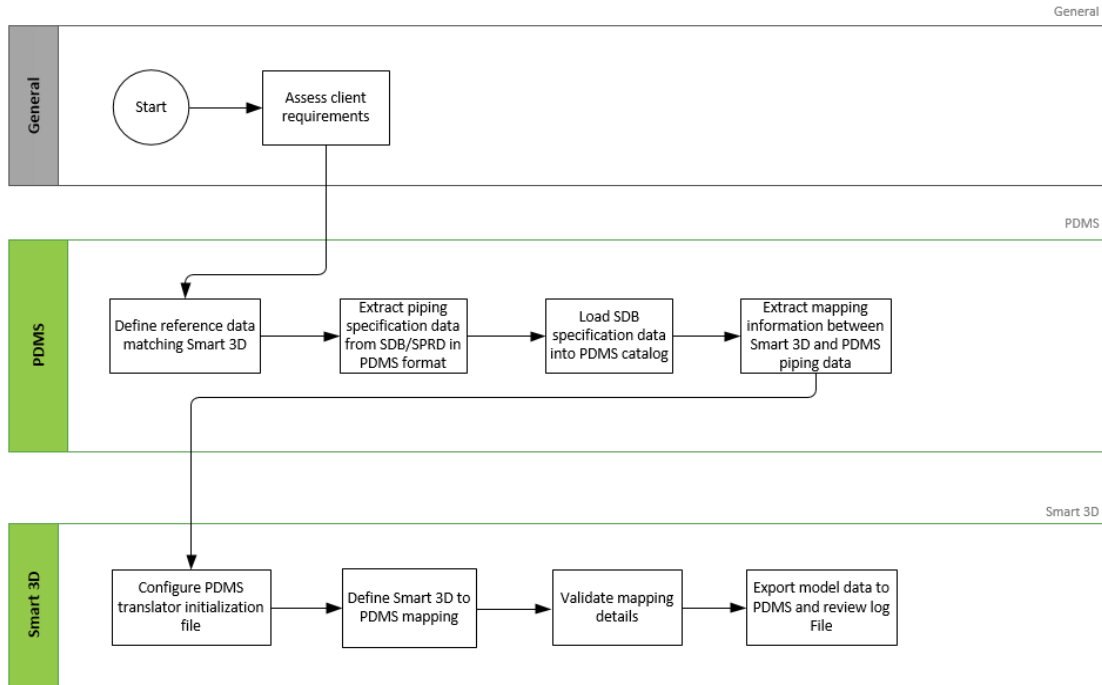
TIP PDMS does not allow the materials and detailed text to be loaded if the line count in the above generated files is more than 5000.

NOTES

- Before loading the specification files ensure that the materials and detailed text files exist in the PDMS catalog.
- PDMS administrators need to make arrangements to load the component/dimensional data into the PDMS catalog.

- You cannot use loaded specification files from PDMS unless all of the component/dimensional data along with the point sets and geometry sets are generated for the specification. Also, ensure that the SCOMs are created in PDMS before the Component CATRef link file is run.
- SmartPlant Reference Data integration does not transfer instruments and specialties in SDB to PDMS. You need to manually transfer and create appropriate mapping between instruments and specialties.

Extract mapping information between Smart 3D and PDMS piping data



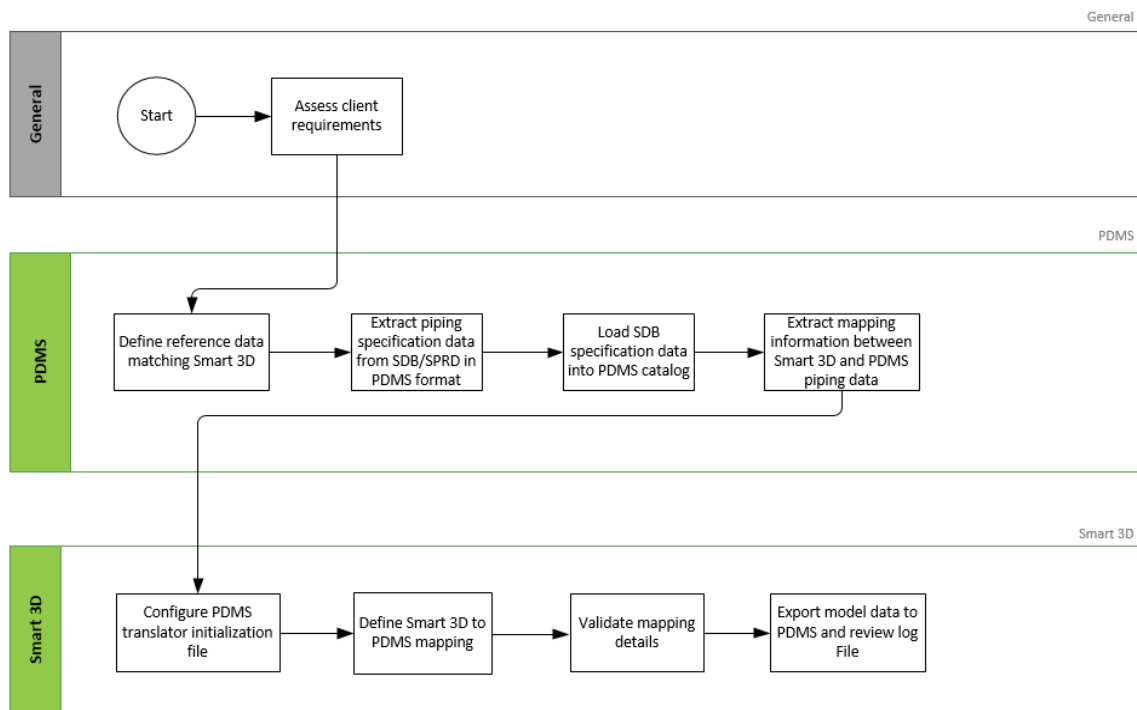
The extracted mapping data between Smart 3D and PDMS piping data can be used in the **S3DPDMSExportmapping.xls** workbook. You can also use this workbook to export PDMS data. To extract a mapping file in .xls format, use the **Company Menu > CO.SD SDB-Tools > COM.PX.02.02 Export PDMS/SP3D-Data** standard database tools. Mapping configuration also generates additional data related to size independent commodity codes used in either tool, so that the additional data can be used to generate dimensional data for components in PDMS.

	A	B	C	D	E	F
	Use a "I" To comment out entire line	SP3D Value	PDMS Value	PDMS Catref	SP3D Commodity Code	MapType
1						
2	Start					
3		010CA01B1-45 Degree Direction Change-1-15-15	*/13666751	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
4		010CA01B1-45 Degree Direction Change-1-20-20	*/13666759	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
5		010CA01B1-45 Degree Direction Change-1-25-25	*/13666762	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
6		010CA01B1-45 Degree Direction Change-1-32-32	*/13666765	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
7		010CA01B1-45 Degree Direction Change-1-40-40	*/13666768	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
8		010CA01B1-45 Degree Direction Change-1-50-50	*/13666771	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
9		010CA01B1-45 Degree Direction Change-1-65-65	*/13666774	BE4LDCCBEDCHAAA	BE4LDCCBEDCHAAA	
10						
11						

NOTE Mapping information can be extracted for each component per specification with corresponding Idents and size independent Smart 3D commodity codes along with its Idents that can be used in PDMS.

TIP Remove */ from the PDMS value when appending the mapping information to the **S3DPDMSExportmapping.xls** workbook.



Validate mapping details




★ **IMPORTANT** Close the mapping file before running the **PDMS Export Validation** command. To avoid errors, the mapping file must remain closed during the validation process.

1. Click **File > Export > PDMS Data Export > PDMS Export Validation**.

*The software displays the **PDMS Export Validation** dialog box.*

2. Click the browse button  beside the **Filter** box, and then select the appropriate filter. By default, the software displays the active filter for the current session.
3. Select **Validate from mapping file**.
4. Specify the location of the mapping file to be validated. By default, the validation tool updates the mapping file located in *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDMSExport*. To specify a mapping file in a different location, select **Specify alternative location** and then type the full path location and file name in the **Data/Mapping file to validate** box. Alternatively, click the browse button  beside the **Data/Mapping file to validate** box, and then navigate to the location.
5. In the **Validation criteria** list, select the object types for which mapping is to be validated. You must select at least one criterion from the list.

6. In the **Log file details** box, type the name and folder location of the log file. Alternatively, click the browse button , and then navigate to the location.

7. Click **Validate**.

*The software validates the mapping data that you have defined and creates a worksheet named **Smart 3D Objects-Missing Mapping** in the **S3DPDMSEExportMapping.xls** workbook. This sheet lists the missing mapping information. The software also updates individual worksheets with missing mapping information. For easy identification, the software highlights any updated cell in red.*

8. Review the log file for any errors.

NOTE If the mapping file is read-only, the software creates a copy of the file with the name **<Mapping file name>_COPY.xls**, and saves it in the same location as the original mapping file. The software updates the copy of the mapping file with the missing mapping details.

PDMS Export Validation Dialog Box


Filter

Displays the active filter of the session file. Click **Browse**  to navigate to and select a different filter.

Target (PDMS) object selection criteria

Specify the selection criteria. The current release of the software supports only the **Validate from mapping file** option.

Specify alternative location


Allows you to specify a mapping file other than the one in the default location. By default, the software updates the mapping file located in *[Product Folder]\SharedContent\Data\Translators\S3DPDMSEExport*. To specify a different location, select this option and then type the full path location and file name in the **Datal/Mapping file path** box. Alternatively, click the browse button , and then navigate to the location.


Datal/Mapping file path




Type the full path location and name of the mapping file to validate. This option is available only if you select **Specify alternative location**. Updating DATAL files is not supported in the current release of the software.



Validation criteria

Select the Smart 3D objects whose mapping you want to validate. Objects are listed by discipline. For each criterion that you select, the software validates the corresponding worksheet in the mapping file. You must select at least one object in the **Validation criteria** list.


Validation Criteria	Details
Hierarchy	Reports missing mapping for the Smart 3D objects hierarchy in the CustomizeS3DHierarchyMap sheet.
Equipment Models  NOTE For more information about any of the equipment mapping sheets referenced in the following rows, see <i>Equipment Translation Maps</i> (on page 116).	
Nozzles	Reports missing mapping for pipe nozzle CATRef attributes in the CPStraightNozzleCAtRefMap and CPElbowNozzleCAtRefMap sheets. Reports missing mapping for HVAC nozzle CATRef attributes in the CPHvacNozzleCatRefMap sheet.
Catalog equipment	Reports missing mapping for PartNumber and TempPartNumber attributes in the PartNumberValueMap and the DesParamAdditonalAttrMap sheets, respectively.
Shapes	Reports missing mapping for ShapePartClass in the CPShapeValueMap sheet.

Validation Criteria	Details
Piping Models  NOTE For more information about any of the piping mapping sheets referenced in the following rows, see <i>Piping Translation Maps</i> (on page 134).	
Components	Reports missing mapping for the following: <ul style="list-style-type: none"> Smart 3D part identifiers for pipe parts in the S3DPartIdentifierMap sheet. Smart 3D catalog components in the CatalogComponentSPREFMap sheet. Smart 3D catalog components in the NPDSpecificSPREFMap sheet. Smart 3D catalog specialty items in the CatalogSpecialtySPREFMap sheet. Smart 3D catalog instrument items in the CatalogInstrumentSPREFMap sheet. Smart 3D on-the-fly specialty items in the OnFlySpecialitySPREFMap sheet. Smart 3D on-the-fly instrument items in the OnFlyInstrumentSPREFMap sheet.
Specification	Reports missing mapping for pipe run specification in the PipeRunSpecMap sheet.
End Connection	Reports missing mapping for the end connection of pipe parts in the PipingEndConnectionMap sheet.
Stock parts	Reports missing mapping for stock parts SpecRef attributes in the CatalogComponentSPREFMap sheet.
Connections	Reports missing mapping for gaskets SpecRef attributes in the CatalogComponentSPREFMap sheet and in the NPDSpecificSPREFMap sheet.
Supports	Reports missing mapping for pipe support components in the PipeSupportSPREFMap sheet, if the .ini file option ExportSupportsAs is set to ATTACHMENT_MAPPING in the .ini file.

Validation Criteria	Details
Structure Models  NOTE For more information about any of the structure mapping sheets referenced in the following rows, see <i>Structure Translation Maps</i> (on page 144).	
Fire proofing	Reports missing insulation on member parts in the InsulationAttrMap sheet. The tool also reports the missing insulation SpecRef attributes in the InsulationSpecAttrMap sheet.
Cross sections	Reports missing mapping for cross-section of member parts in the StrucClassAdditionalAttributes sheet.
Materials	Reports missing mapping for materials for objects such as <member parts, handrails, ladders, stairs, slabs footings, equipment foundations, plate parts, and hole fittings in the StructureMatSpecMap sheet.
MarineCrosssections	Reports missing mapping for cross section of profile parts in the MarineCSAdditionalAttributes sheet. Only applicable when using the software in Marine mode.
WallComposition	Reports missing mapping for the composition of wall parts in the PDMSWallAdditionalAttributes sheet.
WallCrossSection	Reports missing mapping for the cross section of wall parts in the WallCrossSectionMap sheet.  NOTE WallComposition is validated before WallCrossSection . If there is missing mapping in the PDMSWallAdditionalAttributes sheet, manually add the missing mapping to the sheet, and then validate the WallCrossSectionMap sheet.
HVAC Models  NOTE For more information about any of the HVAC mapping sheets referenced in the following rows, see <i>HVAC Translation Maps</i> (on page 130).	
Components	Reports missing mapping for the following: <ul style="list-style-type: none"> Smart 3D part identifiers for HVAC parts in the HVACPartIdentifierMap sheet. Smart 3D catalog components in the HVACComponentSPREFMap sheet.
Specification	Reports missing mapping for duct run specifications in the DuctRunSpecMap sheet.
EndConnection	Reports missing mapping for the end connection of duct parts in the HVACEndConnectionMap sheet.

Validation Criteria	Details
DuctParts	Reports missing mapping for duct parts SpecRef attributes in the HVACComponentSPREFMap sheet.
Connections	Reports missing mapping for gaskets SpecRef attributes in the HVACComponentSPREFMap sheet.
Supports	Reports missing mapping for duct/design supports in the HVACComponentsSPREFMap sheet.
Hangers and Supports Models	
<p> NOTE For more information about any of the piping mapping sheets referenced in the following rows, see <i>Supports Translation Maps</i> (on page 164).</p>	
Supports	<ul style="list-style-type: none"> ▪ Reports missing PartNumber mapping for support components in the SupportPartNumber sheet. ▪ Reports the missing mapping for a support component's GType attribute in the SupportGTYPE sheet. ▪ Reports the missing mapping for a support component's Attributes in the SupportUserAttributes sheet.
Electrical Models	
<p> NOTE For more information about any of the electrical mapping sheets referenced in the following rows, see <i>Electrical Translation Maps</i> (on page 111).</p>	
Components	Reports missing mapping for conduit and cable tray parts in the ElectricalPartIdentifierMap and ElectricalComponentSPREFMap sheets.
Specifications	Reports missing mapping for electrical specifications in the ElectricalRunSpecMap sheet.
ElectricalStockParts	Reports missing mapping for conduit and cable tray stock parts in the ElectricalPartIdentifierMap and ElectricalComponentSPREFMap sheets.
EndPreparation	Reports missing mapping for electrical end preparations in the ElectricalEndConnectionMap sheet.

Log file details

Specify the full path location and file name of the log file to be created. Alternatively, you can click **Browse**  and navigate to the necessary location and file.

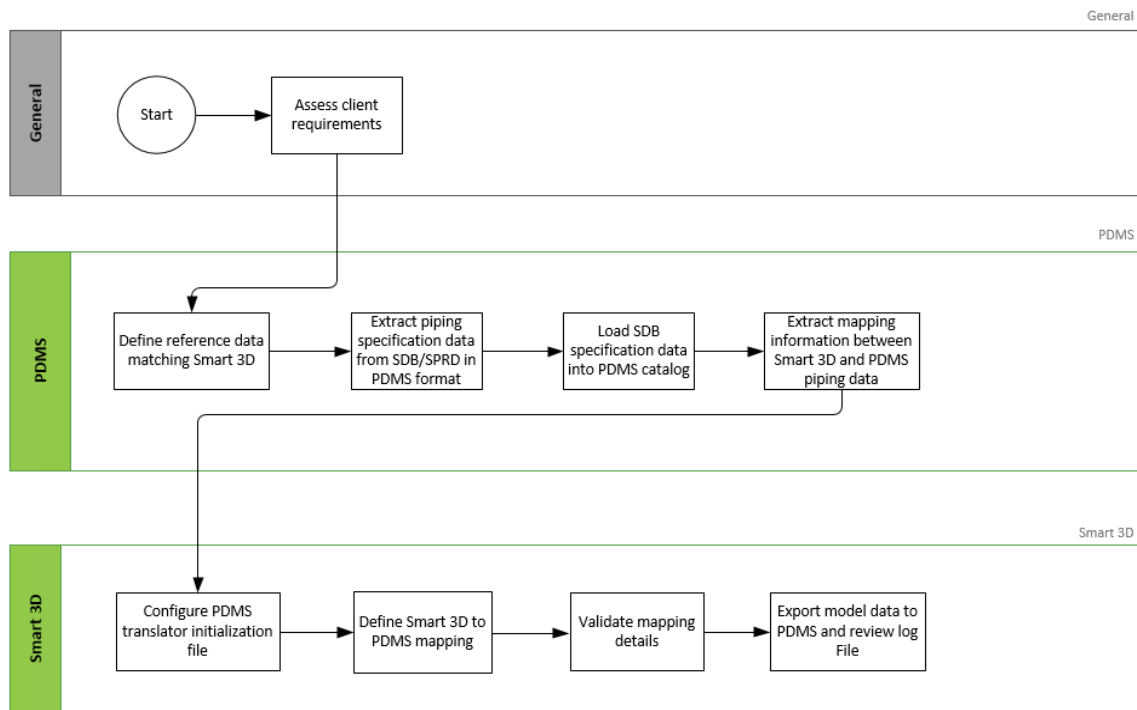
Validate

Runs the **PDMS Export Validation** command based on the criteria that you have specified.

Cancel

Closes the dialog box without performing the validation process.

Export Smart 3D model data to PDMS



★ **IMPORTANT** Prior to exporting Smart 3D data to PDMS, verify that all of the required mapping is completed and that both catalogs are set up appropriately. For more information about mapping and setting up the catalog, see *Appendix: Smart 3D Export to PDMS Workbook* (on page 109) and *Define matching reference data* (on page 41), respectively.

1. In the Smart 3D Common task, click **File > Export > PDMS Data Export > Export Model**.

The **Export Model to PDMS Data** dialog box displays.

2. Select the filter to use for selecting the objects to export.
3. Type a description of the model.
4. Type your name in the **Author** box and your company name in the **Organization** box.
5. Specify the name and full path location of the output DATAL file.
6. Navigate to the mapping file to use in the export process.
7. Specify the name and full path location for the log file.

8. Click **OK** to start the export process.

When processing completes, the dialog box closes.

TIP If you click **Apply** instead of **OK**, the dialog box remains open when processing completes so you can click **View Log** to open the log file. Otherwise, you must manually navigate to the log file.

9. Review the log file for errors and warnings.

NOTES

- You must create the filter before you can export the model objects. Otherwise, the export process might fail.
- The mapping file is a Microsoft Excel workbook that is used to map all the objects and their properties in Smart 3D and PDMS. This workbook is delivered to the *[Reference Data Folder]\SharedContent\Translators\S3DPDMSExport* folder during setup.
- If you want the software to create a separate datal file for each discipline, you must select **Generate separate file for each discipline**.
- To export profile parts when working in Marine mode, the plate parts that connect to the profile parts must be selected in the filter.

Export Model to PDMS Datal Dialog Box

Provides options that control how Smart 3D model objects are written to the PDMS output datal file.

If you have any questions about using this translator, please contact Intergraph Support. You can find support information on our web site at <http://support.intergraph.com>.

Filter

Specifies the filter to use to identify the model objects for export.

Description

Specifies a description of the model. The description you enter is included in the output DATAL file.

Author

Identifies the person who creates the output DATAL file.

Organization

Specifies the company or organization name to use in the output DATAL file.

Datal file


Defines the file name and folder path of the output DATAL file to write. The DATAL file is a native file format for PDMS.

Mapping file

Indicates the mapping file to use in the export process. The mapping file is a Microsoft Excel workbook that is used to map all the objects and their properties in Smart 3D and PDMS. For more information, see *Appendix: Smart 3D Export to PDMS Workbook* (on page 109).

Log file

Specifies a name for the log file. You can view the log file at the end of processing by clicking **View Log**.

 **NOTE** **View Log** is available only if you click **Apply** to begin the export process.

Generate separate file for each discipline

Creates a separate output DATAL file for each discipline. Exporting Smart 3D model data by discipline reduces DATAL file size and assists in identifying and resolving export issues.

OK

Exports the data as specified and closes the **Export Model to PDMS Datal** dialog box.

Apply

Exports the data as specified without closing the **Export Model to PDMS Datal** dialog box.

Cancel

Cancels the operation and closes the **Export Model to PDMS Datal** dialog box.

View File

Opens the output DATAL file for viewing.

View Log

Displays the export log file. To view the log file, you must click **Apply** to begin the export process. If you click **OK**, the dialog box closes at the end of processing and **View Log** is unavailable.

See Also

Export Smart 3D model data to PDMS (on page 56)

SECTION 2

Importing PDMS Design Data

You can import the following PDMS design data to Smart 3D:

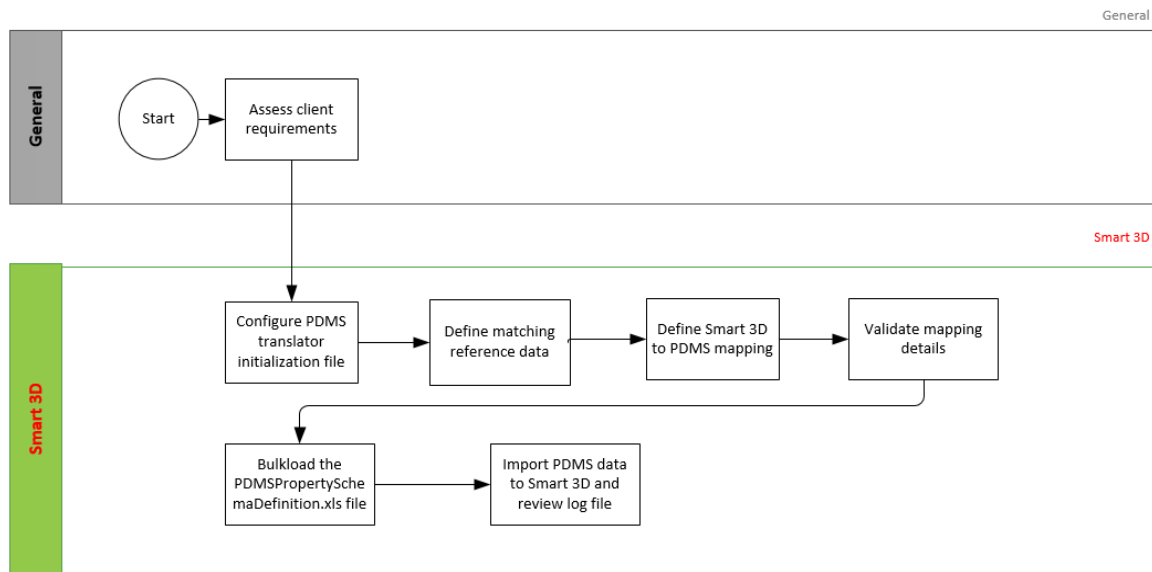
- Equipment
- Piping
- HVAC
- Structure
- Hangers and Supports
- Electrical

For information about the types of PDMS design data that you can import to Smart 3D, see *Supported Object Types* (on page 61).

★ **IMPORTANT** You must have a **PDMS to Smart 3D Importer** license key installed on the SmartPlant License server to use the import to Smart 3D functionality.

Import to Smart 3D Workflow

The diagram below shows the recommended workflow for transferring design data from PDMS to Smart 3D.



What do you want to do?

- *Configure the PDMS import initialization file* (on page [67](#))
- *Define matching reference data* (on page 69)
- *Validate mapping details* (on page 76)
- *Bulk load the database* (on page 78)
- *Import PDMS data to Smart 3D* (on page 80)

See Also

Limitations When Importing PDMS Design Data to Smart 3D (on page

Supported Object Types

Not all PDMS model data can be imported to Smart 3D. The tables below list the Smart 3D object types by discipline that are supported for PDMS import.

Equipment Objects:

PDMS Object Type	Smart 3D Object Type	Import Options
Equipment	Catalog/Design equipment	Mapping
Sub-equipment	Catalog/Design equipment component	Mapping
Primitive with Negative primitives	Design Solid	
Primitive	Shape	<ul style="list-style-type: none"> ▪ Mapping ▪ GTYPE
Nozzle	Pipe nozzle	Mapping

Piping Objects:

PDMS Object Type	Smart 3D Object Type	Import Options
Pipe	Pipeline system	Mapping
Branch	Pipe run	Mapping
Object in PDMS based on SPRE	Component/Instrument/Specialty	Mapping
Gasket	Gasket	Mapping
Attachment	Support/Component/Instrument/Specialty	Mapping
NEW WELD	Field Fitted Weld (FFW)	Mapping

HVAC Objects

PDMS Object Type	Smart 3D Object Type	Import Options
HVAC	Ducting system	Mapping
Branch	Duct run	Mapping
Object in PDMS based on SPRE	Duct component	Mapping

Structure Objects:

PDMS Object Type	Smart 3D Object Type	Import Options
<ul style="list-style-type: none"> Section Generic section 	<ul style="list-style-type: none"> Linear member part Curved member part 	Mapping
Negative primitives	<ul style="list-style-type: none"> Openings on straight wall NOTE PDMS import does not currently support openings on curved walls. Openings on slab Openings on plate Openings on member 	Mapping
Floor	Slab	Mapping
Structure	<ul style="list-style-type: none"> Stair Ladder Handrail Equipment foundation Footing 	Geometric construction
PJOINT and SJOINT	<ul style="list-style-type: none"> Assembly connection Footing 	Mapping
Panel	Plates	Mapping

PDMS Object Type	Smart 3D Object Type	Import Options
STWall	Straight wall	Mapping
Wall	Curved wall	Mapping
GWall	Slab	Mapping

Hangers and Supports Objects

PDMS Object Type	Smart 3D Object Type	Import Options
<ul style="list-style-type: none"> ▪ PCLAMP ▪ HELEMENT ▪ SCLAMP 	Design support components	Mapping

Hierarchy Objects

PDMS Object Type	Smart 3D Object Type	Import Options
SITE	Generic system	Fixed
ZONE	Generic system	Fixed
UDET (as hierarchy element)	Smart 3D system	Mapping. If no mapping is provided, defaults to a generic system.

Electrical Objects

PDMS Object Type	Smart 3D Object Type	Import Options
Pipe	Electrical system	Mapping
Branch	Cableway (cable tray run)	Mapping
Electrical component	Cable tray component	Mapping

Limitations When Importing PDMS Design Data to Smart 3D

The following limitations are known to exist when importing PDMS piping, equipment, HVAC, hangers and supports, and structure model data into Smart 3D.

Global

- If you are importing PDMS design data into Smart 3D, then the DATAL/ATT files must start with SITE hierarchy information. Otherwise, the model does not import.
- We recommend that you set the units of the PDMS model to use the same units as those used for the destination datal file that you want to import into Smart 3D. For example, if you want to import a datal file into Smart 3D that uses feet as the units, then we recommend that the PDMS model units also be feet.

Equipment Models

- If mapping is available, PDMS equipment and subequipment are processed as catalog equipment and equipment components. If no mapping is available, PDMS equipment and subequipment are created as designed equipment and designed equipment components using their template data.
- If mapped, PDMS primitives that are present under Equipment or SubEquipment are imported into Smart 3D as shapes. If no mapping exists, these PDMS primitives are imported into Smart 3D as uneditable GType shapes.
- PDMS primitives that have negative primitives are imported into Smart 3D as Design Solids. There can be instances where stitching operation for a Shape might fail. So, the Shape cannot be created under Design Solids. To resolve this, a warning is logged, and the process continues.
- If more than 50 shapes are present under an equipment or equipment component, all Simple Physical Aspect shapes are combined into a GType shape. Other aspect shapes are imported as intelligent S3D shapes. If there are more than 1000 shapes under an equipment or equipment component, each group of 1000 shapes are combined into a GType. For example, if there are 2500 shapes under an equipment, 1000 shapes are combined into one GType, 1000 shapes are combined into a second GType, and the remaining shapes are combined into a third GType.

Piping Models

- Piping data can be imported into Smart 3D only if the DATAL file and ATT file exist in the same folder and have the same name.
- PDMS import supports specification breaks between components. The **SPRE** or **SPREF** specification value of the PDMS component must be defined as part of the component. For example, if the run specification is **A300**, the **SPRE** value for a globe valve in the run is defined as **/A150/GL-143:150**, where **A150** is the component specification. The globe valve feature is placed with **A150**, and other components in the run are placed with the **A300** specification. If the **SPRE** value is not defined in this format, or if the component does not use **SPRE** or **SPREF**, the component is imported with the branch specifications.

HVAC Models

- HVAC data can be imported into Smart 3D only if the DATAL file and ATT file exist in the same folder and have the same name.

Structure Models

- PDMS primitives present under SubStructure are imported into Smart 3D as Geometric Constructions (GCs). These GCs cannot be edited or moved in Smart 3D.
- PDMS has no concept of a multi-layer slab. When you map a PDMS material to a Smart 3D multi-layer composition, the software uses the default composition for object placement. If a default composition does not exist in the Catalog, the software skips over the slab import and writes an error message to the log file, similar to the following example:

```
Skipped processing Slab: strSlabType and the Slab Composition
mapped in mapping file are not present in the Catalog
```

- Smart 3D cannot create openings if the negative geometry under the PDMS section intersects both the web and the flange.
- PDMS **GWall** cannot be processed as a Smart 3D wall because the **GWall** cross section is formed by a set of points that are not supported in Smart 3D. The software imports **GWalls** as slabs, using the mapped slab material in the **Slab Material** mapping sheet.
- PDMS import does not support wall connections.

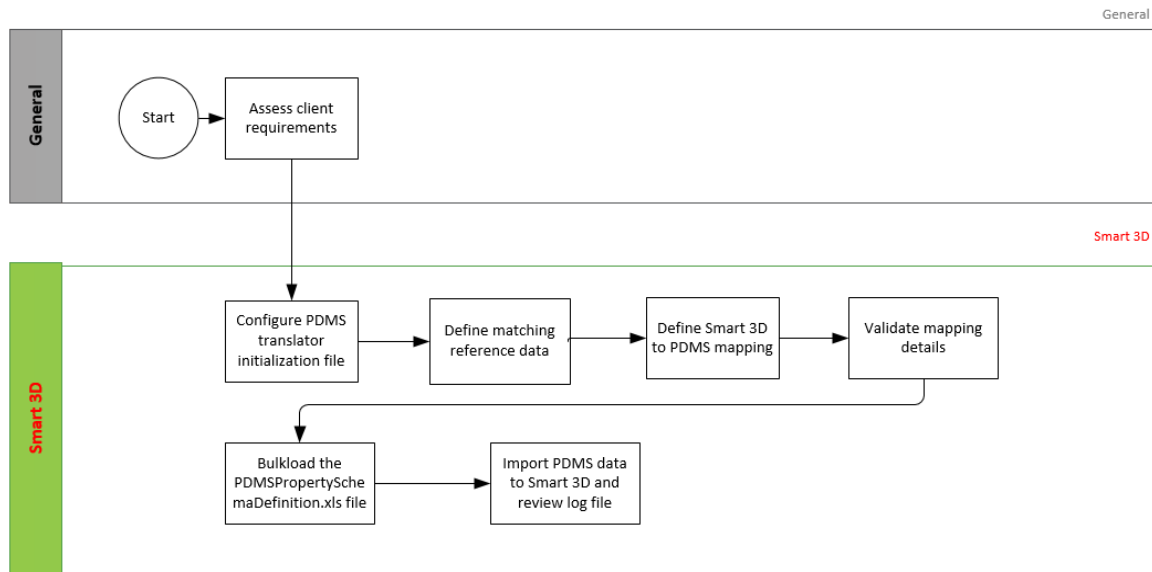
Hanger and Support Models

- Hangers and Supports can be imported into Smart 3D only when **Piping**, **Structure**, and **Hanger/Support** are selected under **Disciplines to import** in the **Import Model from PDMS Datal to Smart 3D** dialog box. For more information, see *S3D PDMS Datal Import Dialog Box* (on page 81).

Electrical Models

- Electrical data can be imported into Smart 3D only when the .datal file and the .att file exist in the same folder and have the same name.

Configure the PDMS import initialization file



The PDMSImportTranslator.ini file controls the import of PDMS model data to Smart 3D. You can modify the default values to suit your specific project needs.

1. In Windows Explorer, browse to the *[Reference Data Folder]\SharedContent\Data\Translators\PDMS3DImport* folder.
2. Open **PDMSImportTranslator.ini**, and modify the options as needed.
3. Save your changes.

NOTE SharedContent is delivered in the Smart 3D Reference Data setup.

PDMS Import Initialization File Options

The PDMSImportTranslator.ini file is divided based on the discipline, such as equipment, piping, and so on. Each section contains a specific set of default options that are used during import.

Globals

In general, .ini options in the global section are applicable to all disciplines.

DeveloperLogging


Determines the type of log file that is created.

- **0** - Create end-user logging. This is the default value.
- **1** - Create developer logging.

ImportPDMSPanelsAsSlabs

Controls whether PDMS panels are imported as slabs or as plates into Smart 3D.

- **NONE** - Import all PDMS panels as plates into Smart 3D. This is the default value.
- **ALL** - Import all PDMS panels as slabs into Smart 3D.
- **CONDITIONAL** - If no panel thickness is available in the Smart 3D catalog, import the panels as slabs. Otherwise, import the panels as plates.

 **NOTE** If MATREF is not available for the panel, Smart 3D imports the slab from the catalog with the slab composition defined as **Imported_Slab** and the slab type defined as **General_Slab**. If the catalog does not contain the slab part, bulkload the **PDMSS3DAllCommon.xls**, **PDMSS3DStructSlabGeneral.xls**, and **PDMSS3DStructSlabLayer.xls** workbooks, located in the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DSimport\ConfigurationFiles\Bulkloadables* folder. This folder also contains a text file detailing the bulkload process.

Equipment

UseMappingToCreateCatalogEquipment

Determines whether catalog equipment are imported through mapping or by using primitives.

- **0** - Create catalog equipment as design equipment using template information. This is the default value.
- **1** - Import catalog equipment using the mapping file.

UseMappingToCreateCatalogEquipmentComponent

Determines whether catalog equipment is imported through mapping or by using template data that contains PDMS primitives.

- **0** - Create catalog equipment as design equipment using template information.
- **1** - Import catalog equipment using the mapping file. This is the default value.

UseMappingToCreateShapes

Determines whether shapes are imported through mapping or by breaking them into GTypes and creating the appropriate primitives in Smart 3D.

- **0** - Break shapes into GTypes, and create the appropriate primitives in Smart 3D.
- **1** - Import shapes using the mapping file. If any mapping is missing for any shape, the software breaks the shape into GTypes, and creates the appropriate primitives in Smart 3D. This is the default value.

PartNumberToCreateDesignEquipment

Creates design equipment. The part number of the design equipment defined in the initialization file must also be present in the Smart 3D catalog. If the part number is not present in the catalog, then the import of design equipment fails.

PartNumberToCreateDesignEquipmentComponent

Creates design equipment components. The part number of the design equipment component defined in the initialization file must also be present in the Smart 3D catalog. If the part number is not present in the catalog, then the import of the design equipment component fails.

CreateUniqueNamingForEquipmentSubEquipmentAndNozzles

Controls the naming used when importing equipment, sub-equipment, and nozzles that have no name in the DATAL file.

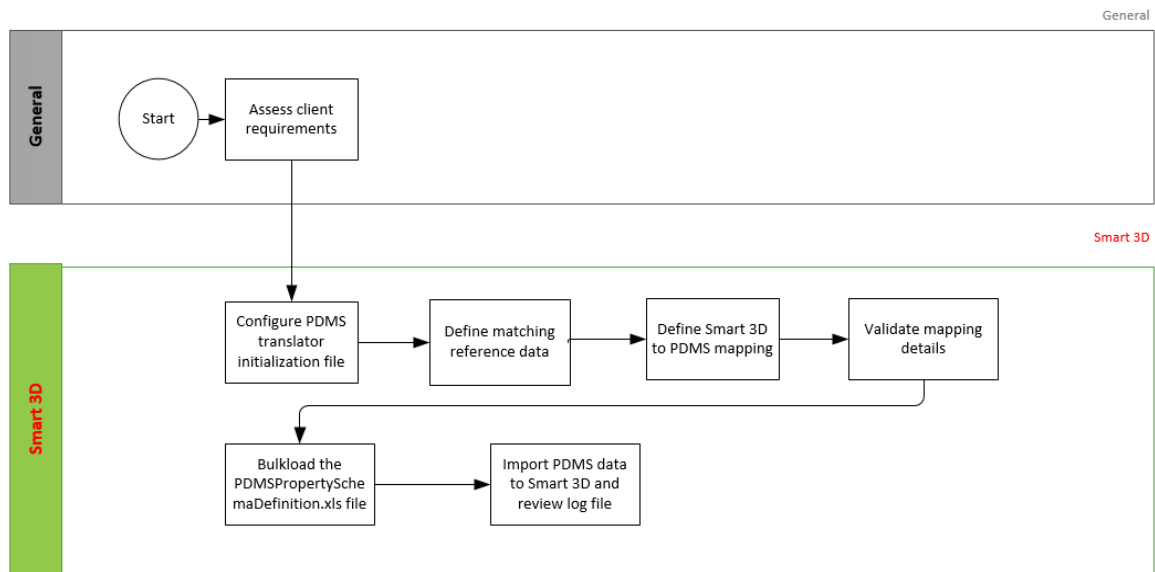
- **0** - Import equipment, sub-equipment, and nozzles using the default Smart 3D name rule.
- **1** - Import equipment, sub-equipment, and nozzles using a unique name. This is the default value.

Piping**BoreUnits**

Determines which units the NPD Equivalence Rule uses when converting bore size during import.

- **in** - Convert all bores to inches when importing data into Smart 3D. This is the default value.
- **mm** - Convert all bores to millimeters when importing data into Smart 3D.

Define matching reference data



Prior to importing design data from PDMS, a catalog with corresponding objects, parts, and specifications must exist in Smart 3D. For a successful import, ensure that the Smart 3D catalog meets the following criteria outlined.

Equipment Model Data

- The Smart 3D catalog must contain the same applicable equipment shapes and nozzles that are used in the PDMS project.
- To import catalog equipment using a mapping file, the same PDMS item must also be present in the Smart 3D catalog.
- To import nozzles, all applicable nozzle data must exist in the Smart 3D catalog prior to import and must match the nozzle data that exists in the PDMS project.
- You must provide mapping information for any new shape. The shape in PDMS must match the shape in Smart 3D.

Piping Model Data

- All of the applicable piping specifications in the PDMS project must also exist in the Smart 3D catalog
- All of the components used in the PDMS catalog must match those in the Smart 3D catalog. Component properties and dimensional data must also match between the two catalogs.
- All applicable end preparations must be set up in the PDMS catalog.
- All of the piping PCOMP or INST, with or without design parameters, in the PDMS catalog must be mapped to the specialties, instruments, and on-the-fly specialties and instruments in the Smart 3D catalog. Their dimensional data must match that of the components in the Smart 3D catalog.
- All gaskets and welds with exact thickness must be set up and available in the Smart 3D catalog.

HVAC Model Data

- All of the applicable HVAC specifications in the PDMS catalog must also exist in the Smart 3D catalog.
- All of the components that are used in the HVAC specification must be present in the PDMS catalog and must match those in the Smart 3D catalog. Component properties and dimensional data must also match between the two catalogs.

Structure Model Data

- To import the material property on a structure object, each applicable material in the PDMS catalog must be mapped to the appropriate material in the Smart 3D catalog.
- To import PDMS members properly, you must provide mapping between PDMS member cross-sections and Smart 3D cross-sections.
- To import PDMS members properly, you must map PDMS cardinal points to Smart 3D cardinal points.
- To import PDMS walls properly, you must map PDMS wall SPRE and MATR to Smart 3D wall composition and cross-sections. You must also map the PDMS justification line (JUSL) to Smart 3D cardinal points.

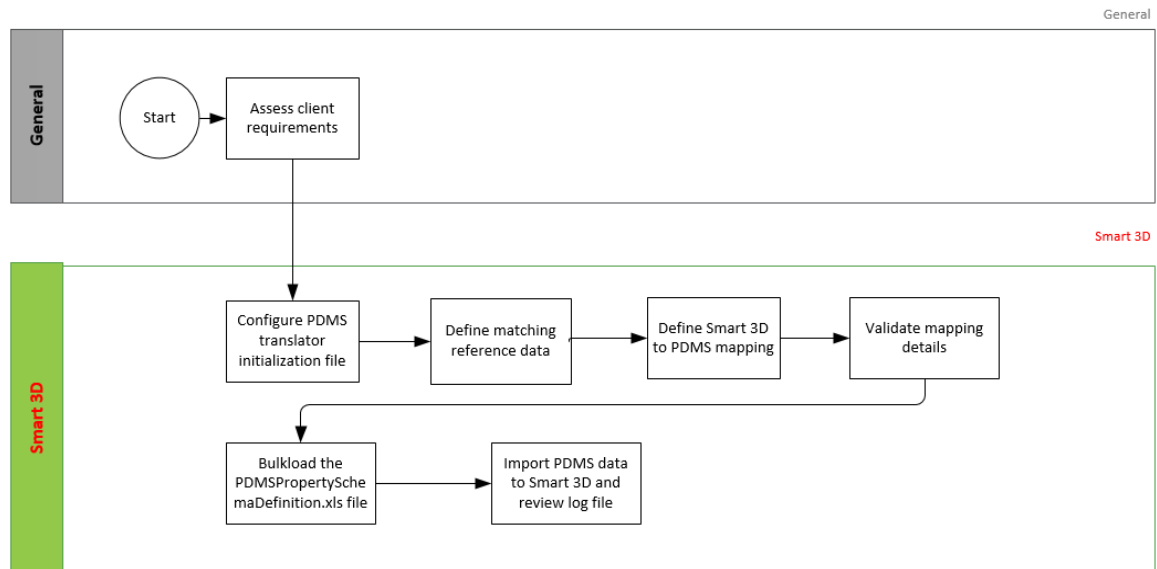
Hangers and Support Model Data

To transfer hangers and supports by mapping, Hanger element, SCLAMP, and PCLAMP in PDMS must be mapped to corresponding Smart 3D support components. The PDMS catalog should be exactly the same as the Smart 3D catalog. Otherwise, mismatches in the geometry and orientation of the transferred support components can occur.

Electrical Model Data

- All of the applicable cable tray specifications in the PDMS project must also exist in the Smart 3D catalog.
- All of the components used in the PDMS catalog must match those in the Smart 3D catalog. Component properties and dimensional data must also match between the two catalogs.

Load piping specifications from SDB into Smart 3D catalog



Piping specification and component data can be exported from the standard database to Microsoft Excel workbooks, and then bulkloaded into the catalog or they can be exported directly to the Smart 3D catalog database. For more information on the integration procedure, see *SmartPlant Reference Data Smart 3D Interface User's Guide* which is delivered with the SmartPlant Materials software.

PDMS Import Validation

Use the **File > Import > PDMS Data Import > PDMS Import Validation** command to validate the mapping data that you have defined in the PDMSS3DImportMapping.xls workbook. The command uses a specified set of user-defined criteria to locate missing mapping details, and then updates the mapping file.

Smart 3D updates individual worksheets with any missing mapping information. For identification, the software highlights the updated cells in red or yellow. A new sheet in the mapping file, **Smart 3D Objects - Missing Mapping**, lists all of the missing mapping information.

After running the validation tool, you must bulkload the **CustomInterfaces** sheet in the PDMSPROPERTYSchemaDefinition.xls workbook into the Smart 3D catalog. This bulkload is required to add the PDMS interfaces to the Smart 3D catalog, and to update the Smart 3D property dialog boxes with the PDMS category.

The software writes the results of the validation process to a log file.

Validation Criteria

Hierarchy

The import validation tool validates site, zone, and UDET data in the specified datal file.

The software updates the PDMSPROPERTYSchemaDefinition.xls workbook with **InterfaceName** and **PDMS AttributeName** for attributes under **Site**, **Zone**, and **UDET**. The software also updates the HierarchyClassMap sheet in the PDMSS3DImportMapping.xls workbook with missing attributes of UDET data.

Equipment

The import validation tool validates equipment, sub-equipment, nozzle, and primitive data in the specified datal file.

The software updates the PDMSPROPERTYSchemaDefinition.xls workbook with **InterfaceName** and **PDMS AttributeName** for attributes under **Equipment**, **Sub-Equipment**, **Nozzle**, and **Primitive**.

The software updates the following sheets in the mapping workbook:

- **CPSmartEquipmentMap** - Missing attributes of PDMS equipment.
- **CPEquipmentComptMap** - Missing attributes of PDMS sub-equipment.
- **CPShapMap** - Missing attributes of PDMS primitives.
- **CPShapeValueMap** - Missing **Part types of PDMS Primitives**.
- **CPPipeNozzleMap** - Missing attributes of PDMS.
- **NozzleAdditionalAttrMap** - Missing PDMS **CATReference** for nozzles.
- **PartNumberValueMap** - Missing **PDMS SpecReference** of equipment and sub-equipment data.
- **AspectMap** - Missing **LEVEL** and **OBST** values of PDMS primitives.

Piping

The import validation tool validates PDMS pipeline, pipe branch, pipe component, pipe instrument, and pipe support data in the specified .att file.

NOTE For the piping discipline, the software automatically selects the .att file from the specified .dtl file location. The name of the .dtl file and the .att file must be the same. Both files must be in the same folder.

The software updates the PDMSPropertySchemaDefinition.xls workbook with **InterfaceName** and **PDMS AttributeName** for attributes under **Pipeline**, **Pipe Branch**, **Pipe Component**, **Pipe Instrument**, and **Pipe Support**.

The software updates the following sheets in the mapping workbook:

- **CPPipelineSystemMap** - Missing attributes under **PDMS Pipeline system** in the .att file.
- **CPMPipeRunMap** - Missing attributes under the **PDMS branch** in the .att file.
- **PipeRunSpecMap** - Missing **Pipe Specification (PSPE)** of the **PDMS branch** in the .att file.
- **PipeComponentAttrsMap** - Missing attributes under **PDMS Pipe Components** in the .att file.
- **PipeInstrumentAttrsMap** - Missing attributes under **PDMS Pipe Instruments** in the .att file.
- **PipeSupportAttrsMap** - Missing attributes under **PDMS Pipe Supports** in the .att file.
- **S3DXMLPartTypeMap** - Missing **Components GType** for **Pipe Component**, **Pipe Instrument**, and **Pipe Support**.
- **SPREFS3DIdentifierPatternMap** - Missing **SPECReference (SPRE)** for **Pipe Component**, **Pipe Instrument**, and **Pipe Support**.

HVAC

The import validation tool validates PDMS HVAC system, HVAC branch, HVAC component, and HVAC fitting data in the specified .att file.

NOTE For the HVAC discipline, the software automatically selects the .att file from the specified .dtl file location. The name of the .dtl file and the .att file must be the same. Both files must be in the same folder.


The software updates the PDMSPropertySchemaDefinition.xls workbook with **InterfaceName** and **PDMS AttributeName** for attributes under **HVAC System**, **HVAC Branch**, **HVAC Component**, and **HVAC Fitting** data.


The software updates the following sheets in the mapping workbook:

- **CPDuctingSystemMap** - Missing attributes under **PDMS HVAC System** in the .att file.
- **CPDuctRunMap** - Missing attributes under **PDMS HVAC Branch** in the .att file.
- **HVACRunSpecMap** - Missing **HVAC Branch specifications (PSPE)** in the .att file.
- **HVACRunMaterialMap** - Missing **HVAC Branch specifications (PSPE)** in the .att file.
- **DuctComponentAttrsMap** - Missing attributes under **PDMS HVAC Components** in the .att file.
- **DuctFittingAttrsMap** - Missing attributes under **PDMS HVAC Fitting** in the .att file.
- **S3DHVACXMLPartTypeMap** - Missing **Component GTypes** of **HVAC Components** and **HVAC Fittings** in the .att file.
- **SPREFS3DHVACIdentifierPtttrnMap** - Missing **SPECReference (SPRE)** of **HVAC Component** and **HVAC Instrument** in the .att file.

Electrical

The import validation tool validates PDMS cableway system, cableway branch, and cableway fitting data in the specified .att file.

 **NOTE** For the Electrical discipline, the software automatically selects the .att file from the specified .dtl file location. The name of the .dtl file and the .att file must be the same. Both files must be in the same folder.

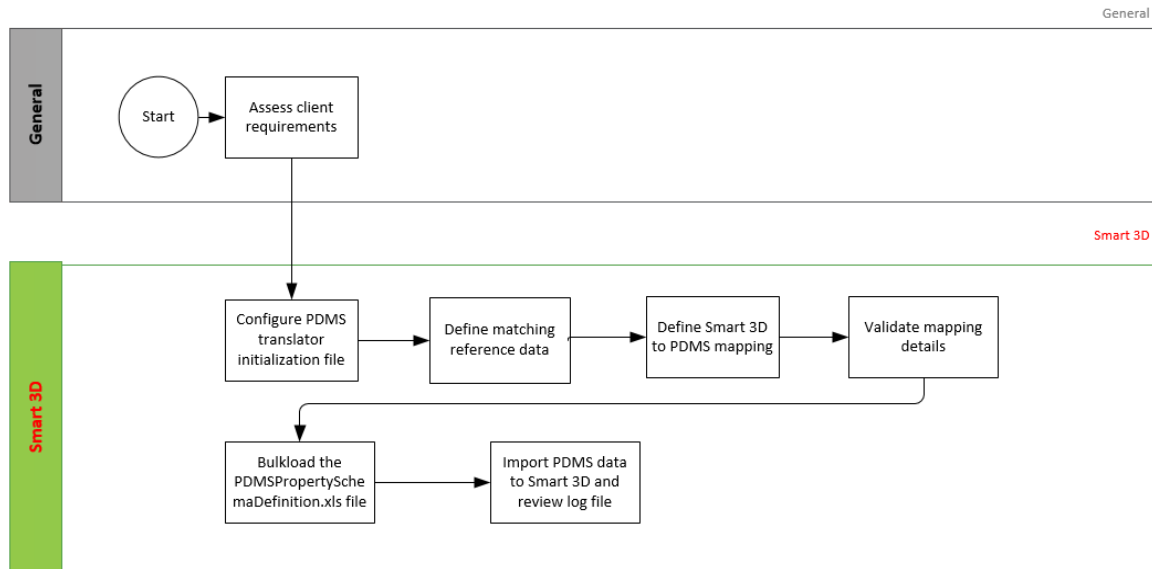
 **IMPORTANT** PDMS does not currently have a keyword for electrical. Because electrical data is in the form of *new pipe*, the software validates cable way data in the pipe class mapping sheets.

PDMS Properties Extractor Dialog Box (on page 77)

What do you want to do?

- *Validate mapping details (on page 76)*
 - *Bulk load the database (on page 78)*
-


Validate mapping details



★ **IMPORTANT** Close the mapping file before running the **PDMS Import Validation** command. To avoid errors, the mapping file must remain closed during the validation process.

1. Click **File > Import > PDMS Data Import > PDMS Import Validation**.

*The **PDMS Properties Extractor** dialog box appears.*

2. Type the name and full path location of the DATAL file to validate. Alternatively, click **Browse** , and navigate to the appropriate file.
3. Specify the required mapping and schema definition files.
4. In **Validation Criteria**, select the discipline mapping to validate. You must select at least one criterion from the available options.
5. Click **Validate**.

*The software runs the validation tool and verifies the mapping details. During validation, the software updates the **PDMSPropertySchemaDefinition.xls** workbook with any missing objects. For identification, the software highlights the updated cells in red and yellow.*

6. Review the log file for any errors.


NOTES

- By default, the following files are delivered during reference data installation:
 - The mapping file is delivered in the *[Reference Data Folder]\SharedContent\Data\Translators\PDMS3DImport* folder.
 - The schema definition file is delivered in the *[Reference Data Folder]\SharedContent\Data\Translators\PDMS3DImport\ConfigurationFiles\Bulkloadables* folder.

- If the mapping file is read-only, then the software creates a copy of the mapping file with the name **<Mapping file name>_COPY.xls**, and saves it in the same location as the original mapping file. The software also updates the copy of the mapping file with the missing mapping details.
- After running the validation tool, you must bulk load the **CustomInterfaces** sheet from the **PDMSPropertySchemaDefinition.xls** workbook into the Smart 3D catalog. This bulkload is required to add the PMDS interfaces to the Smart 3D catalog and to update the Smart 3D property dialog boxes with the PDMS category.
 - By default, after validation, all missing attributes in the mapping sheet are listed after the **End** statement with an exclamation mark ("!"). Before you bulk load the **PDMSPropertySchemaDefinitionWorkbook.xls** workbook, delete the "!" marks from the missing attributes, and move the required rows between the **Start** and **End** statements.
- After running the validation tool, the **PDMS3DImportMapping.xml** workbook displays all missing entries in the following colors:
 - **Red** - The component does not match any mapped components or patterns.
 - **Yellow** - The component does not match any mapped components, but matches with a pattern instead. Entries highlighted in yellow are treated as warnings. See the log file for more information.


PDMS Properties Extractor Dialog Box

Datal File


Specifies the datal file for which the schema definition file and the mapping file requires validation. Type the name and full path location of the datal file. Alternatively, click **Browse** , and navigate to the datal file. The software automatically selects an .att file if you select a routing discipline for validation.

NOTE The .att file name must be the same as the .dtl file name. Both files must be in the same folder.

Schema Definition File

Specifies the PDMS property schema definition file. Type the name and full path location of the file. Alternatively, click **Browse** , and navigate to the appropriate file.

Import Mapping File

Specifies the mapping file to validate. Type the name and full path location of the mapping file. Alternatively, click **Browse** , and navigate to the file.

Validation Criteria

Specifies the disciplines to validate. After validation, the selected object types are updated in the schema definition file and the mapping file. For more information, see *PDMS Import Validation* (on page 72).

Validate

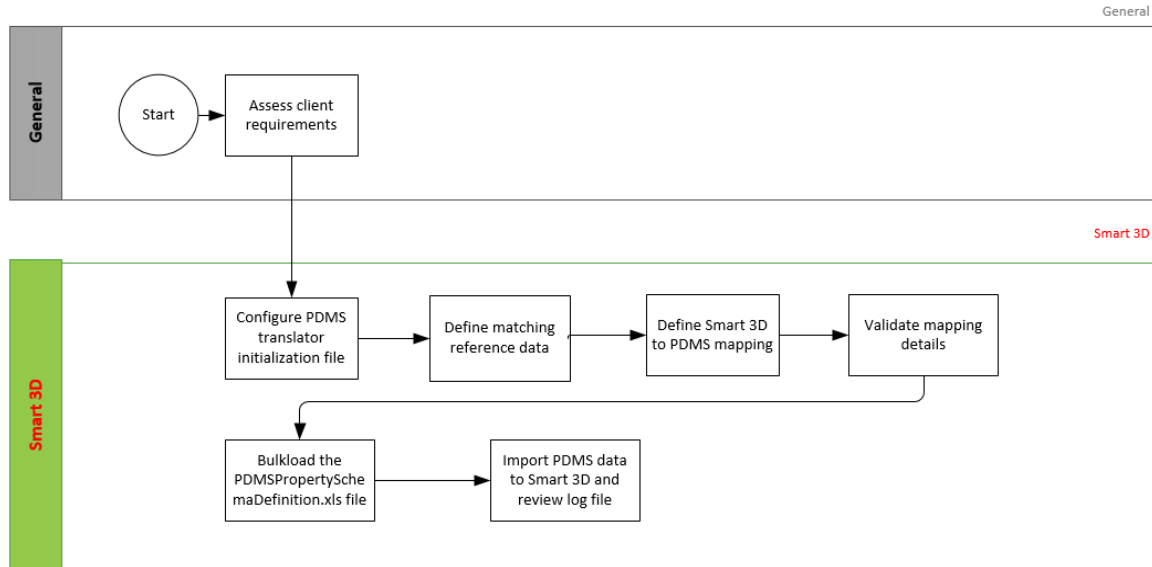
Runs the **PDMS Import Validation** command based on the specified criteria.

Cancel

Closes the dialog box without performing the validation process.

View Log

Displays the status log file after the validation process completes.

Bulk load the database

After running the validation tool, you must bulkload the **CustomInterfaces** sheet in the PDMSPROPERTYSchemaDefinition.xls workbook into the Smart 3D catalog. This bulkload is required to add the PMDS interfaces to the Smart 3D catalog, and to update the Smart 3D property dialog boxes with the PDMS category.

★ IMPORTANT

- Perform this procedure on a computer with the Bulkload utility and Server Connectivity component installed. Log on with a user name that has database administrator privileges. For more information about necessary components, see the *Intergraph Smart™ 3D Installation Guide*. You can access the installation guide using the **Help > Printable Guides** command.
- Close all Excel workbooks before starting the bulkload. Do not open Excel during the bulkload process.

1. Click **Start > Programs > Intergraph Smart 3D > Database Tools > Bulkload Reference Data**.


The Bulkload utility appears.

2. In the **Excel files** box, click **Add** and navigate to the PDMSPROPERTYSchemaDefinition.xls workbook.

💡 TIP By default, the workbook is delivered to the *[Reference Data Folder]\SharedContent\Data\Translators\PDMS3DImport\ConfigurationFiles\Bulkloadables* folder.

3. In the **Excel codelist files** box, click **Add** and navigate to the PDMSPropertyCodeLists.xls workbook.

TIPS

- By default, the workbook is delivered to the *[Reference Data Folder]\SharedContent\Data\Translators\PDMS3DImport\ConfigurationFiles\Bulkloadables* folder.
 - You must specify a workbook in this box if you are modifying the delivered codelist. In all other cases, you are not required to populate this box.
4. Under **Bulkload mode**, select **Append to existing catalog** to add the new data to an existing database.
 5. In the **Database server name** list, select the server on which the catalog database resides.
 6. In the **Database name** list, select the name of the catalog database that you want to update with the new reference data.
 7. Select the Catalog Schema database name in the **Schema database name** box.
 8. In the **Log file box**, click **Browse**  to specify the name and location of the log file.

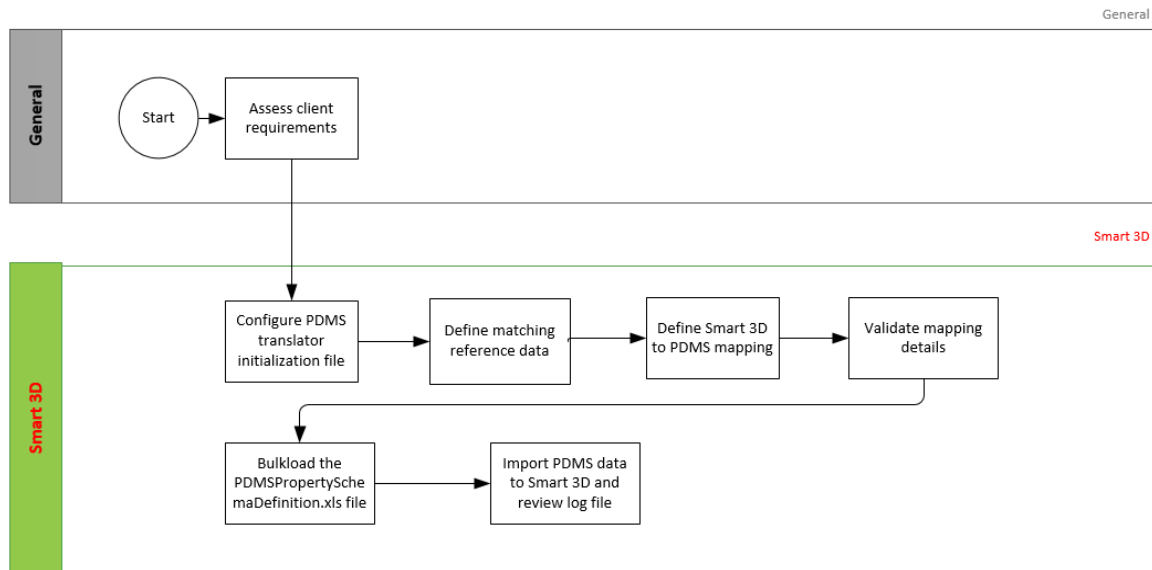
TIPS

- The default location for the log file is *[Product Folder]\CatalogData\BulkLoad\DataFiles*, but you can change this location.
 - You must have write privileges to the folder in which you are saving the log file.
 - The log file name must not contain any special characters. However, you can use the back slash when specifying a UNC path to a log file.
 - You must use the file extension .log for the log file.
9. Click **Load**.
The software updates the catalog database with the required data. You can see progress messages in the status bar of the Bulkload utility as the bulkload operation runs.
 10. Open the log file to check for any errors or warnings in the bulkloading process. You can quickly scan the **Error Analysis** section at the end of the log file to check for errors.
 11. Click **Close**.

NOTES

- You can modify the Excel workbooks, and then bulk load them again to correct errors.
- Create a new log file for each bulkload operation, instead of overwriting the existing one. Check the log file for errors after each bulkload operation.
- For more information about using the Bulkload utility, see *Loading Reference Data into the Catalog* in the *Smart 3D Reference Guide* available with the **Help > Printable Guides** command.

Import PDMS data to Smart 3D



★ **IMPORTANT** Prior to importing a PDMS DATAL file to Smart 3D, verify that the appropriate mapping has been completed and that both catalogs have been set up appropriately. For more information about mapping and setting up the catalog, see *Appendix: PDMS Import to Smart 3D Workbook* (on page 170) and *Define matching reference data* (on page 69), respectively.

1. In the Smart 3D Common task, click **File > Import > PDMS Datal Import > Import Model**.

*The **S3D PDMS Data Import** dialog box appears.*

2. Select the parent system.

💡 **TIP** The parent system determines where the imported PDMS objects are placed.

3. Specify the name and full path location of the PDMS input DATAL file in the **Datal File** box.

★ **IMPORTANT** Do not manually edit PDMS DATAL files or ATT files.

4. Navigate to the mapping file.
5. Specify the name and full path location for the log file.
6. Select the disciplines to import.

7. Click **OK** to start the import process.

When processing completes, the dialog box closes.

TIP If you click **Apply** instead of **OK**, the dialog box remains open when processing completes so you can click **View Log** to open the log file. Otherwise, you must manually navigate to the log file.

8. Review the log file for errors and warnings.

NOTES

- All of the imported objects are placed under the selected parent system.
- The mapping file is an Excel workbook that is used to map all the objects and their properties in Smart 3D and PDMS. This workbook is delivered to the *[Reference Data Folder]\SharedContent\Translators\PDMS3DImport* folder during setup.

S3D PDMS Datal Import Dialog Box

Provides options that control how the PDMS DATAL file is read by Smart 3D during import.

Select Parent System

Specifies the parent system under which imported objects are placed when imported.

Datal File

Specifies the file name and folder path of the input DATAL file to read.

Mapping File

Indicates the mapping file to use in the import process. The mapping file is an Excel workbook that is used to map all the objects and their properties in Smart 3D and PDMS. For more information, see *Appendix: PDMS Import to Smart 3D Workbook* (on page 170).

Log File

Specifies a name for the log file. You can view the log file at the end of processing by clicking **View Log**.

NOTE **View Log** is available only if you click **Apply** to begin the import process.

Disciplines to Import

Determines which object discipline sets are imported. When you select a discipline, the related objects from that discipline are imported into Smart 3D.

OK

Imports the data as specified and closes the **S3D PDMS Datal Import** dialog box after the import process is complete.

Apply

Imports the data as specified without closing the **S3D PDMS Datal Import** dialog box.

Cancel

Cancels the operation and closes the **S3D PDMS Datal Import** dialog box.

View Datal

Opens the input DATAL file in the default text editor. This option is available only if you select an input DATAL file.

View Log

Displays the log file. To view the log file, you must click **Apply** to begin the import process. If you click **OK**, the dialog box closes at the end of processing and **View Log** is unavailable.

See Also

Import PDMS data to Smart 3D (on page 80)

SECTION 3

Troubleshooting

The following topics list solutions to common problems that you may have when exchanging design between Smart 3D and PDMS. Tips for improving performance are also provided.

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Import/Export Issues 85

Project Creation Estimates 87

Performance Tips

NOTE The performance tips outlined below are only guidelines, which can be modified and refined with real projects.

Export/Import performance and file size -The table below summarizes the data transfer performance between Smart 3D and PDMS:

Discipline	Number of first class objects	File size	Export Time	Import Time
Equipment	<ul style="list-style-type: none"> 334 equipment items (37 designed equipment items and 297 catalog equipment items) 1,109 nozzles 350 shapes 	7.2 MB	180 seconds	600 seconds
Piping	2,000 pipe parts/components, consisting of 90 pipelines and 210 pipe runs	57 7KB	40 seconds	65 seconds
Structure	<ul style="list-style-type: none"> 790 members 19 handrails 9 ladders 6 stairs 	6 MB	240 seconds	360 seconds

Import performance and file size - The table below summarizes the data transfer performance for a sample PDMS model into Smart 3D:

NOTE The import process was performed on a 64-bit computer with 8GB RAM and running Windows 7 Professional.

Discipline	Number of first class objects	File size	Import Time
Equipment	<ul style="list-style-type: none"> 14 equipment items 8 sub-equipment items 52 nozzles 690 primitives 230 panels 	1447 KB	3168 seconds
Piping	<ul style="list-style-type: none"> 36 pipes 71 branches 438 piping components 	114 KB	544 seconds

Discipline	Number of first class objects	File size	Import Time
HVAC	<ul style="list-style-type: none"> ▪ 42 duct components ▪ 6 branches 	60 KB	54 seconds
Structure	<ul style="list-style-type: none"> ▪ 1,528 primitives ▪ 200 sections and their connections ▪ 27 panels ▪ 5 floors 	437 KB	619 seconds

Recommended file size for PDMS import - The table below summarizes the time taken to import two sample Smart 3D datasets of equipment, piping, and structure model data into PDMS. The Smart 3D filter size can be chosen accordingly.

Discipline	File Size	Import Time
Equipment	<ul style="list-style-type: none"> ▪ 7.2 MB ▪ 23 MB 	<ul style="list-style-type: none"> ▪ 10 minutes ▪ 40 minutes
Piping	<ul style="list-style-type: none"> ▪ 577KB ▪ 3 MB 	<ul style="list-style-type: none"> ▪ 1 minute ▪ 3 minutes
Structure	<ul style="list-style-type: none"> ▪ 6 MB ▪ 23 MB 	<ul style="list-style-type: none"> ▪ 6 minutes ▪ 33 minutes

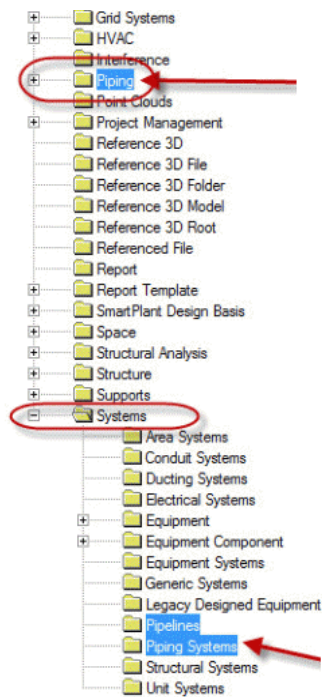
Equipment imported using SAT and DGN files in Smart 3D is slow - PDMS does not support complex curved surfaces. As such, B-spline surfaces stored in the Smart 3D databases are broken into smaller polyhedrons, which adversely impacts export and import performance.

Import/Export Issues

Consider the issues listed below when exporting Smart 3D model data to PDMS:

- **Hierarchy exported from Smart 3D to PDMS** - PDMS has a fixed hierarchy for model objects across the various disciplines, whereas Smart 3D can have a deep hierarchy of systems in place prior to the creation of model objects. In the PDMS hierarchy, the parent of equipment, pipeline systems, and structural objects is created as a zone object, and the parent of a duct run is created as an HVAC object. In the current release of the software, you can control how the hierarchy is created based on the option **CreateHierarchy** in the PDMSExportTranslator.ini file.
- **Names of objects in Smart 3D and PDMS do not match** - Typically caused by object names being duplicated during Smart 3D modeling. During export, the unique name generator mechanism creates new unique names for objects whose names are duplicated. For more information about recommended naming conventions, see *Best Practices* in *Exporting Smart 3D Model Data* (on page 17).
- **The way pipes and ducts are split into branches is inconsistent with the way that they would be modeled in PDMS** - Smart 3D provides two options:
 - A break at the pipe/duct run level can cause this problem. Check the pipe/duct run for breaks.
 - Merge all pipeline/duct components between two free ends, two nozzles, one free end and one nozzle, one branch and one free end, and so on to construct the branch in PDMS. This is controlled using the default setting of the **MergesS3DRuns/MergeS3DDuctRuns** option in the PDMSExportTranslator.ini file. When this option is used, the run names in Smart 3D and the branch names in PDMS can change and be reflected differently in the isometric drawing output.
- **Specifications are from PDMS and not from Smart 3D** - Piping and HVAC data are transferred using mapping to the equivalent specification present in PDMS. To resolve this issue, create the needed specifications in Smart 3D, provide the required mapping, and then perform the transfer.
- **Update of objects** - Updating objects that have been exported to PDMS is supported in the current release of the software based on **ExportOption** in the PDMSExportTranslator.ini file.
- **Incremental transfer of the model** - The same model can be broken into multiple filters or sizes and exported incrementally. If the objects already exist in PDMS, they can be overwritten or skipped based on **ExportOption** in the PDMSExportTranslator.ini file.
- **Label size in Smart 3D** - While defining labels on Smart 3D objects, make sure the length is less than 50 characters. PDMS produces errors if a label longer than 50 characters is mapped to any user-specified attribute in PDMS.

- **Smart 3D piping data** - When exporting a piping model from Smart 3D using an object type filter, select the **Piping** node, and then under the **Systems** node, select **Piping Systems** and **Pipelines** .



Project Creation Estimates

PDMS reference data creation for a typical project - The following list summarizes the approximate time usually needed to create the required catalog items in PDMS. These catalog items are required to facilitate a successful export of Smart 3D model data to PDMS.

- **Catalog equipment** (if needed) - Allow 1 day for each template, depending upon complexity.
- **Nozzle data** - Depends upon the number of records of nozzle data; easy to create.
- **Piping specifications** (data) - Depends upon the size of specification and common parts used within specifications. Can vary from 1/2 to 1 day for each specification when created manually within PDMS.
 - SmartPlant Reference Data (SPRD) to PDMS approach can be considered as one of the solutions.
 - Use a tool on the internet to create specification data.
- **Point set and geometry set used by the piping specifications** (equal to piping symbols) - Allow 1 day for each point set and geometry set, depending upon complexity.
- **Sections** - Allow 1 day for each section type to create catalog.
- **Material** - Depends upon number of records; easy to create.
- **Joints specification** - Joints references are similar to assembly connections in Smart 3D. Allow 2 to 3 days for each new joint. Generally, PDMS delivered joints should be adequate for a typical project.

 **NOTE** This document also includes best practices for completing the required mapping. For more information, see Appendix: Mapping Best Practices.

SECTION 4

Best Practices

You might encounter situations where you do not know the best technique for mapping Smart 3D and PDMS attributes. The following best practices guide you through these processes. Because your modeling environment is unique, specific instructions are not possible. However, enough detail is provided so that you can work through the solutions.

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Export equipment attributes using labels

Labels in Smart 3D can be used to map direct objects or properties of related objects, such as traverse relationships, during export in the mapping file.

The steps below illustrate how to export the Smart 3D equipment part number that is present on the related catalog part to the PDMS DATAL file.

1. In the Smart 3D Catalog task, create a label that gives the part number of the placed equipment.

NOTE For more information about creating labels, see *Label Editor Command* in the *Catalog User's Guide*. You can access this document using the **Help > Printable Guides** command in the software.

2. Open the **CPSmartEquipmentMap** equipment translation mapping file.

NOTE The **CPSmartEquipmentMap** mapping file is located in the S3DPDMSEExportMapping.xls workbook. By default, this workbook is delivered in the *[Product Folder]\3DRefData\SharedContent\Data\Translators\S3DPDMSEExport* folder during setup.

3. Map the **S3D Attribute** to the corresponding **PDMS Attribute**.
4. Type **TRUE** in the **Label** column. An example is shown below.

Use a "!" To comment out entire line	S3D Attribute	PDMS Attribute	MapType	SheetName	Formula	Value	Label	Ignore
!	<i>User can add new values or edit existing values in this sheet</i>							
Start	PartNumberToolTip	S3DPartNumber					TRUE	
		BUIL				TRUE		
		DSCO			'TRUE'			

5. Save the workbook.

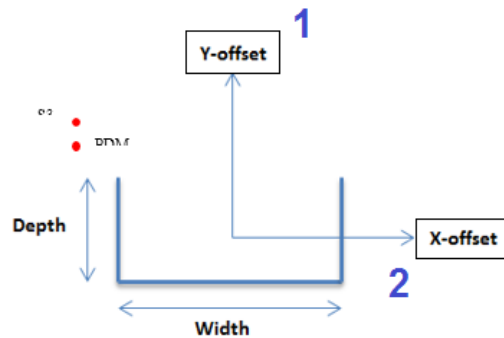
Map cableway object placement mismatches for export

When exporting electrical data, Smart 3D exports the *center* position of the cross-section to the PDMS data file. However, during import, PDMS uses the *bottom-center* of the cross-section to place the cableway objects, resulting in an unintended offset. To correct this system difference, you must use the mapping workflow below before exporting electrical data from Smart 3D to PDMS.

1. Open the **ElectricalRunSpecAdditionalAttr** electrical translation mapping file.

NOTE The **ElectricalRunSpecAdditionalAttr** mapping file is located in the S3DPDMSExportMapping.xls workbook. By default, this workbook is delivered in the [Product Folder]\3DRefData\SharedContent\Data\Translators\S3DPDMSExport folder during setup.

2. Map the offset values for each specification. Use the example below to map the Y-offset (1) and X-offset (2) values:



NOTES

- **Y-offset** represents the offset distance along the radial vector of the electrical component port.
 - **X-offset** represents the offset distance along cross product of the direction vector and radial vector of the electrical component port.
3. Save the mapping file.

Map cross-section and orientation mismatches

The steps below illustrate how to map Smart 3D cross-sections to corresponding PDMS **SpecRef** values. This mapping is required prior to exporting structural data from Smart 3D to PDMS.

1. Identify the PDMS and Smart 3D cross-sections to map.
2. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\S3DPDMSExport* folder, and open the *S3DPDMSExportMapping.xls* workbook.
3. Locate the **StructClassAdditionalAttributes** translation mapping sheet.
4. In Smart 3D, the cross-section is usually swept into the plane of paper. In PDMS, the reverse is true: the cross-section is swept *out of* the plane of paper. To accommodate this system-level difference, you must view the PDMS cross-section from behind the plane of paper. The examples below illustrate how map cross-section orientation mismatches per cross-section type between Smart 3D and PDMS:

- **Mapping Smart 3D L section (1) to PDMS angle section (2):**



When you view the PDMS cross-section from behind the plane of paper, the PDMS cross-section resembles the example below:



To map these two cross-sections between Smart 3D (1) and PDMS (2), use the **BANG** and **Flip** properties on the *StructClassAdditionalAttributes* (on page 159) sheet.



In the above example, if you rotate the PDMS cross-section 180-degrees clockwise (looking in to the plane of the cross-section), the two cross-section orientations match exactly. To achieve this, set **BANG** to **180** degrees, and set **Flip** to **0** (False).

- **Mapping Smart 3D C section (1) to PDMS C Section (2)**



When you view the PDMS cross-section from behind the plane of paper, the PDMS cross-section resembles the example below:



To map these two cross-sections between Smart 3D (1) and PDMS (2), use the **BANG** and **Flip** properties on the *StructClassAdditionalAttributes* (on page 159) sheet.



In the above example, if you flip the PDMS cross-section, the two cross-section orientations match exactly. To achieve this, set **BANG** to **0** degrees, and set **Flip** to **1** (True).

★ **IMPORTANT** Make sure that both cross-sections look similar after applying the **BANG** and **Flip** settings. Then, map the Smart 3D cardinal points to the PDMS PLines using the **DINU_PLine** and **ANG_PLine** sheets, respectively. You must do this mapping for each type of cross-section.

Map Smart 3D walls to PDMS

The following steps illustrate how to map Smart 3D wall composition data to relevant PDMS SpecReference (SPRE), Material Reference (MATR), and Cardinal Points (JUSL) values. This mapping is required prior to exporting Smart 3D wall composition data to PDMS.

1. Identify the PDMS and Smart 3D walls to map.
2. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\S3DPDMSExport* folder, and open the *S3DPDMSExportMapping.xls* workbook.
3. Locate the **PDMSWallAdditionalAttributes** mapping sheet.
4. Map the SpecReference (SPRE), Material Reference (MATR), and Cardinal Points (JUSL) of the Smart 3D wall compositions to the relevant PDMS values.

	Value	Attribute Name	Attribute Value	MapType	Sheet
Start					
	FW_Fc5_4"				
		MATR	/C45/55		
		SPRE	[UUAWallCompositionType.CrossSection]	ValueDef	WallCrossSectionMap
		JUSL	[UUAWallCompositionType.Position]	ValueDef	Wall_JUSL
	RW_Concrete_Fc5_4" RectWF236"x20"				
		MATR	/Grade50		
		SPRE	[UUAWallCompositionType.CrossSection]	ValueDef	WallCrossSectionMap
End		JUSL	[UUAWallCompositionType.Position]	ValueDef	Wall_JUSL

5. Save the mapping file.
6. Locate the **WallCrossSectionMap** mapping sheet, map the Smart 3D wall composition data to the relevant PDMS SpecRef values, and then save the mapping sheet.

Use a "!" To comment out entire line	S3D Value	PDMS Value	MapType	SheetName	Remarks
!	<i>User can add new values or edit existing values in this sheet</i>				
Start					
	Rect19"x3.5"	/SINGLE-SPCO	AdditionalAttributeDef	WallCSAdditionalAttributesMap	
	RectWF236"x20"	/SINGLE-STRIP-SPCO	AdditionalAttributeDef	WallCSAdditionalAttributesMap	
	Rect86"x3.5"	/SINGLE-SPCO	AdditionalAttributeDef	WallCSAdditionalAttributesMap	
	Rect86"x3"	/SINGLE-SPCO	AdditionalAttributeDef	WallCSAdditionalAttributesMap	
	Rect78"x3"	/SINGLE-SPCO	AdditionalAttributeDef	WallCSAdditionalAttributesMap	
End					

7. Locate the **WallCSAdditionalAttributesMap** mapping sheet, map the PDMS design parameters (wall thickness and wall height) to the relevant Smart 3D attributes, and then save the mapping sheet.

	Value	Attribute Name	Attribute Value
Start			
	/SINGLE-SPCO		
		DESP[1]	[IJUAWallCompositionType.Thickness]
		DESP[2]	[IJUAWallCompositionType.Height]
		Flip	0
		BANG	0
	/SINGLE-STRIP-SPCO		
		DESP[1]	[IJUAWallCompositionType.Thickness]
		DESP[2]	[IJUAWallCompositionType.Height]
		Flip	0
		BANG	0
End			

8. Locate the **Wall_JUSL** mapping sheet, map the Smart 3D cardinal points to the relevant PDMS justification lines, and then save the mapping sheet.

Use a "!" To comment out entire line	S3D Value	PDMS Value	MapType	SheetName	Remarks
Start					
	1 IBOW				
	2 CBOW				
	3 OBOW				
	4 NA				Approximate match
	5 NA				Approximate match
	6 NA				Approximate match
	7 ITOW				
	8 CTOW				
	9 OTOW				
	10 NA				
	11 CBOW				
	12 NA				Approximate match
	13 NA				Approximate match
	14 CTOW				
	15 NA				
End					

NOTE The yellow rows indicate the cardinal points that do not have an exact match in PDMS catalog.

Map PDMS design parameters

Design parameters of a specific PDMS object can be mapped to the relevant Smart 3D attributes using their indices. Use the format **DESP [<index>]** to specify these indices in the mapping file. For example, an object in the PDMS datal file with the design parameters **DESP 105 236 295.5 185 110** is expressed in the mapping file as follows:

DESP[1] = 105
DESP[2] = 236
DESP[3] = 295.5
DESP[4] = 185
DESP[5] = 110

Map PDMS piping specifications to Smart 3D

The following steps illustrate how to map PDMS and Smart 3D piping specifications using the **PipeRunSpecMap** translation worksheet. This mapping is required prior to importing PDMS piping data into Smart 3D.

1. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport* folder, and open the PDMS3DImportMapping.xls workbook.
2. Locate the **PipeRunSpecMap** translation worksheet.
3. Map the PDMS branch specifications in the .att file to the corresponding Smart 3D piping specifications.

Use a "!" To comment out entire line	PDMS Value	S3D Value	MapType
<i>User can add new values or edit existing values in this sheet</i>			
Start			
	/A150	1C0031	
	/C150	1S3984	
	/A300	2C0032	
	/A1A	1C0031	
	/DR07C	1C0031	
	/A3B	2C0032	
	/F1C	2C0032	
	/A1A-VALVE	1C0031	
End			

4. Save the mapping file.

Map PDMS piping components and instruments to Smart 3D

The following steps illustrate how to map PDMS piping components and instruments to corresponding Smart 3D components and instruments. This mapping is required prior to importing PDMS piping component data into Smart 3D.

1. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport* folder, and open the *PDMS3DImportMapping.xls* workbook.
2. Locate the **S3DXMLPartTypeMap** translation mapping sheet, map the PDMS piping GType present in the DATAL and .att file to the corresponding Smart 3D value, such as component, instrument, or support. An example is shown below:

Use a "!" To comment out entire line	PDMS Value	S3D Value
!	<i>User can add new values or edit existing values in this sheet, except the values marked</i>	
Start		
	VALVE	Component
	FLANGE	Component
	REDUCER	Component
	CAP	Component
	PCOM	Component
	FTUBE	Component
	ELBOW	Component
	TEE	Component
	OLET	Component
	CLOSURE	Component
!	INSTRUMENT	Instrument
!	GASKET	
	WELD	ConnectionGap
	ATTACHMENT	Support
	VALV	Component
	FLAN	Component
	REDU	Component
	CAP	Component
	PCOM	Component
	FTUB	Component
	ELBO	Component
	TEE	Component
	OLET	Component
	CLOS	Component
	INST	Instrument
	GASK	ConnectionGap
!	WELD	
	ATTA	Support
	FBLI	Component
	BEND	Component
	/A150/00XS100:200	Component
	/A150/00XS100:250	Component
	/A150/00XS100:150	Component
	/A150/00XS100:100	Component
	/A150/00XS200:100	support
	/A150/00XS200:150	Instrument
	/A150/00XS200:200	Component
End		

3. Save the mapping sheet.

4. Locate the **SPREFS3DIdentifierPatternMap** translation mapping sheet, map the PDMS component SPRE to the relevant Smart 3D short code, and then save the mapping sheet.

Use a "!" To comment out entire line	PDMS Value	S3D Value
!	<i>User can add new values or edit existing values in this sheet</i>	
Start		
	/A150/00BS000:100	BPIP
	(/A150/CR:)+	Concentric Size Change
	(/A150/EL90:)+	90 Degree Direction Change
	(/A150/EL45:)+	45 Degree Direction Change
	(/A150/ABEB530:)+	90 Degree Direction Change
	(/A150/ER:)+	Eccentric Size Change
	(/A150/GA-59:)+	Gate Valve
	(/A150/WNRF:)+	Flange
	(/A150/GRF:)+	Gasket
	(/A150/NATW2S0:)+	Weldolet

5. Locate the **ShortCodeAdditionalAttributes** translation mapping sheet, map the additional attributes of the Smart 3D short code, and then save the mapping sheet.

Use a "!" To comment out entire line	S3D Value	S3D Attribute	Attribute Value
!	<i>User can add new values or edit existing values in this sheet</i>		
Start			
	Gate Valve		
		GeometryType	1
		IsSpecificallyPlaced	TRUE
		SP3DGeometryType	15
		IsRotationApplicable	TRUE
		PortNumber	0
	Ball Valve		
		GeometryType	1
		IsSpecificallyPlaced	TRUE
		SP3DGeometryType	15
		IsRotationApplicable	TRUE
		PortNumber	0
		PrimaryDirection	Z
		SecondaryDirection	X

Map PDMS HVAC specifications to Smart 3D

The following steps illustrate how to map PDMS HVAC specifications with Smart 3D using the **HVACRunSpecMap** translation mapping sheet. This mapping is required prior to importing PDMS HVAC data into Smart 3D.

1. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport* folder, and open the PDMS3DImportMapping.xls workbook.
2. Locate the **HVACRunSpecMap** translation worksheet.
3. Map the PDMS HVAC specification in the .att file to the corresponding Smart 3D HVAC specification.

Use a "!" To comment out entire line	S3D Value	PDMS Value
!	<i>User can add new values or edit existing values in this sheet</i>	
Start		
	/HARGREAVES	Lindab Spec
	/RDUCT	Lindab Spec
	/CADCHVACSPEC	Spec-0
End		

4. Save the mapping file.

Map HVAC components to Smart 3D components and fittings

The following steps illustrate how to map PDMS HVAC components to Smart 3D components and fittings. This mapping is required prior to importing PDMS HVAC component data into Smart 3D.

1. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport* folder, and open the *PDMS3DImportMapping.xls* workbook.
2. Locate the **S3DHVACXMLPartTypeMap** sheet, and then map the PDMS HVAC GType present in the DATAL and .att file to the appropriate Smart 3D value, such as **Component** or **Fitting**.

Use a "!" To comment out entire line	PDMS Value	S3D Value
!	<i>User can add new values or edit existing values in this sheet, except the values marked</i>	
Start		
	REDUCER	Fitting
	CAP	Fitting
	FTUBE	Component
	ELBOW	Fitting
	TEE	Fitting
	COUPLING	Fitting
	REDU	Fitting
	CAP	Fitting
	FTUB	Component
	ELBO	Fitting
	TEE	Fitting
	COUP	Fitting
	STRT	Fitting
	BEND	Fitting
	THREWAY	Fitting
	TAPE	Fitting
	TRNS	Fitting
	THRE	Fitting
End		

3. Save your changes.
4. Locate the **SPREFS3DHVACIdentifierPtttrnMap** sheet, and then map the PDMS component SPRE values to the relevant Smart 3D HVAC part numbers.

Use a "!" To comment out entire line	PDMS Value	S3D Value	MapType	SheetName
!	<i>User can add new values or edit existing values in this sheet</i>			
Start				
	HARGREAVE/S/CFECLL06	NPU-200	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CPLBL06	BU-200-90	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CBMTLL06	TCPU-200x200	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CECRTL06	RLU-400x200	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CFCTT06	NPU-400	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CHTTP06	TCPU-400x300	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CSBCC06	SKU-80-90	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CFECC06	NPU-80	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/CMITCC06	TCPU-80x80	AdditionalAttributeDef	HVACAdditionalAtrMap
	HARGREAVE/S/SQTEC06	TCPU-100x80	AdditionalAttributeDef	HVACAdditionalAtrMap

5. Save your changes.
6. Locate the **HVACAdditionalAttsMap** sheet, and then map any Smart 3D part number additional attributes.

NPU-100		
	PartClass	LindabHVACCoupling
	GeometryType	5
BKU-100-90		
	PartClass	LindabRoundShortElbow
	GeometryType	1
RCFU-100x80		
	PartClass	LindabHReducer
	GeometryType	5
C-1-R		
	PartClass	SpiralHVACReducer
	GeometryType	5
	DimensionalData.IJDuctSize.Width	DESP[2]
	DimensionalData.IJDuctSize.Depth	DESP[2]
	DimensionalData.IJDuctBranchSize.BWidth	DESP[4]
	DimensionalData.IJDuctBranchSize.BDepth	DESP[4]
	DimensionalData.IJUAHvacDimensions.Length	DESP[6]
RectTee1		
	PartClass	RectTee
	GeometryType	3
	DimensionalData.IJDuctBranchSize.BWidth	DESP[2]
	DimensionalData.IJDuctBranchSize.BDepth	DESP[3]
	DimensionalData.IJDuctSize.Width	DESP[4]

7. Save your changes.

Map PDMS walls to Smart 3D walls

The following steps mapping PDMS wall spec references (SPRE) and material references (MATR) to Smart 3D wall cross-sections, composition, thickness, and height as design parameters. This mapping is required prior to importing PDMS wall data into Smart 3D.

1. Identify the PDMS wall and Smart 3D walls to map.
2. Navigate to the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport* folder, and open the *PDMS3DImportMapping.xls* workbook.
3. Locate the **WallCrossSecCompositionMap** mapping sheet, and then map the Smart 3D wall cross-section, composition, thickness, and height values to PDMS [SPRE]-[MATR].

	Value	Attribute Name	Attribute Value
	<i>User can add new values or edit existing values in this sheet</i>		
Start			
	SPCOMPONENT /SINGLE-SPCO-SOLID /C25/30		
		IUAWallGeneralType.Composition	PW_Brick_6"
		IUAWallCompositionType.CrossSection	Rect19"X3"
		IUAWallCompositionType.Thickness	DESP[1]
		IUAWallCompositionType.Height	DESP[2]
	SPCOMPONENT /SINGLE-SPCO-0		
		IUAWallGeneralType.Composition	PW_Brick_6"
		IUAWallCompositionType.CrossSection	Rect19"X3"
		IUAWallCompositionType.Thickness	DESP[1]
		IUAWallCompositionType.Height	DESP[2]
End			

4. Save the mapping file.
5. Locate the **WallCardinalPointMap** mapping sheet, and then map the PDMS justification line (JUSL) to the relevant Smart 3D cardinal points.

Use a "!" To comment out entire line	PDMS Value	S3D Value	MapType	SheetName	Remarks
Start					
	Default	1			
	IBOW	3			
	CBOW	2			
	OBOW	1			
	NA	1			Approximate Match
	ITOW	9			
	CTOW	8			
	OTOW	7			
End					

NOTE If a row in the sheet is highlighted yellow, then the JUSL does not have an exact match to a Smart 3D cardinal point.

6. Save the mapping file.

Map cableway horizontal bends

If you are exporting Smart 3D electrical data to PDMS, the Smart 3D horizontal bends (left/right) must be mapped to the left bend in PDMS. The software automatically calculates the orientation of the bend and places it accurately in PDMS.

Map support components offset differences

When you define the .ini option **ExportSupportsAs** as ATTACHMENT_MAPPING, you can export Smart 3D supports as pipe attachments to PDMS.

In order to reflect the support position in the isometric drawing, the attachment position should be defined on the center of the pipe in PDMS. However, in Smart 3D, you do not have to place the support component directly on the support position. The distance from the support position to the support component position is determined by defining design parameters on the attachment in the PDMS catalog.

1. Open the [Product Folder]\3DRefData\SharedContent\Data\Translators\S3DPDMSExport\S3DPDMSExportMapping.xls workbook.
2. In the **PipeSupportSPREFMap** sheet, map the support component part number to the corresponding attachment SpecRef.

SP3D Value	PDMS Value	Map Type	SheetName
<i>User can add new values or edit existing values in this sheet</i>			
DEFAULT	D0X0000:[NPD1]		
Anvil_FIG242A_10	A150/00XHR02:150	AdditionalAttributeDef	PipeSupportAdditionalAttributes
Anvil_FIG212_12	A150/00XHC00:[NPD1]	AdditionalAttributeDef	PipeSupportAdditionalAttributes

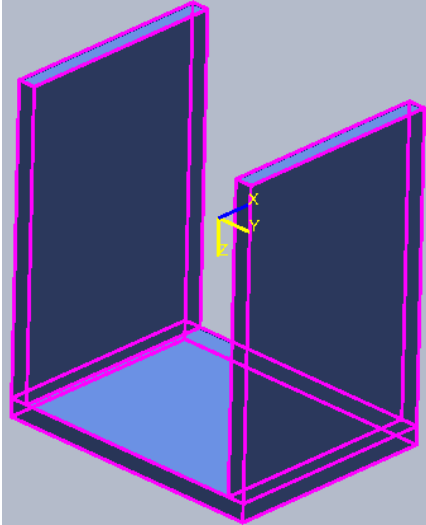
3. In the **PipeSupportAdditionalAttributes** sheet, map the design parameters for the attachment SpecRef.

A150/00XHR02:150		
	DESP[1]	XOffset
	DESP[2]	YOffset
	DESP[3]	ZOffset

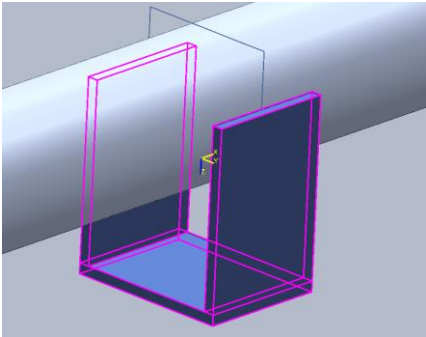
- **X-offset** - The offset distance from the support (support assembly or design support) position to the support component position along the X-direction of the support component.
- **Y-offset** - The offset distance from the support (support assembly or design support) position to the support component position along the Y-direction of the support component.
- **Z-offset** - The offset distance from the support (support assembly or design support) position to the support component position along the Z-direction of the support component.

4. Save your changes.

NOTE Define the offset differences in the PDMS catalog so that the attachment can use these values as design parameters (DESP) to position itself properly from the pipe center position. For example, the following shows a Smart 3D support component with its catalog orientation:



The same component is shown after placing it in the model:



If the support component is exported with the .ini option **ExportSupportsAs** set to **ATTACHMENT_MAPPING**, then the support component is exported as an attachment with the DESPs defined as shown below. The DESP value shows that the component is moved 167.7 units down from the pipe center position along the Z-direction of the component:

```
NEW ATTACHMENT /Anvil_FIG242A_10-1-C1
STEXT 'Anvil_FIG242A_10-1-C1'
POS E 3029303.356 N 2365210.241 U 66779
DESP 0 0.0 167.7
```

NOTE If none of the components under the support assembly are mapped, or if the design support has no components under it, then the mapping provided at the **DEFAULT** keyword level is used, and the SpecRef mapped to the **DEFAULT** keyword is a logical support.

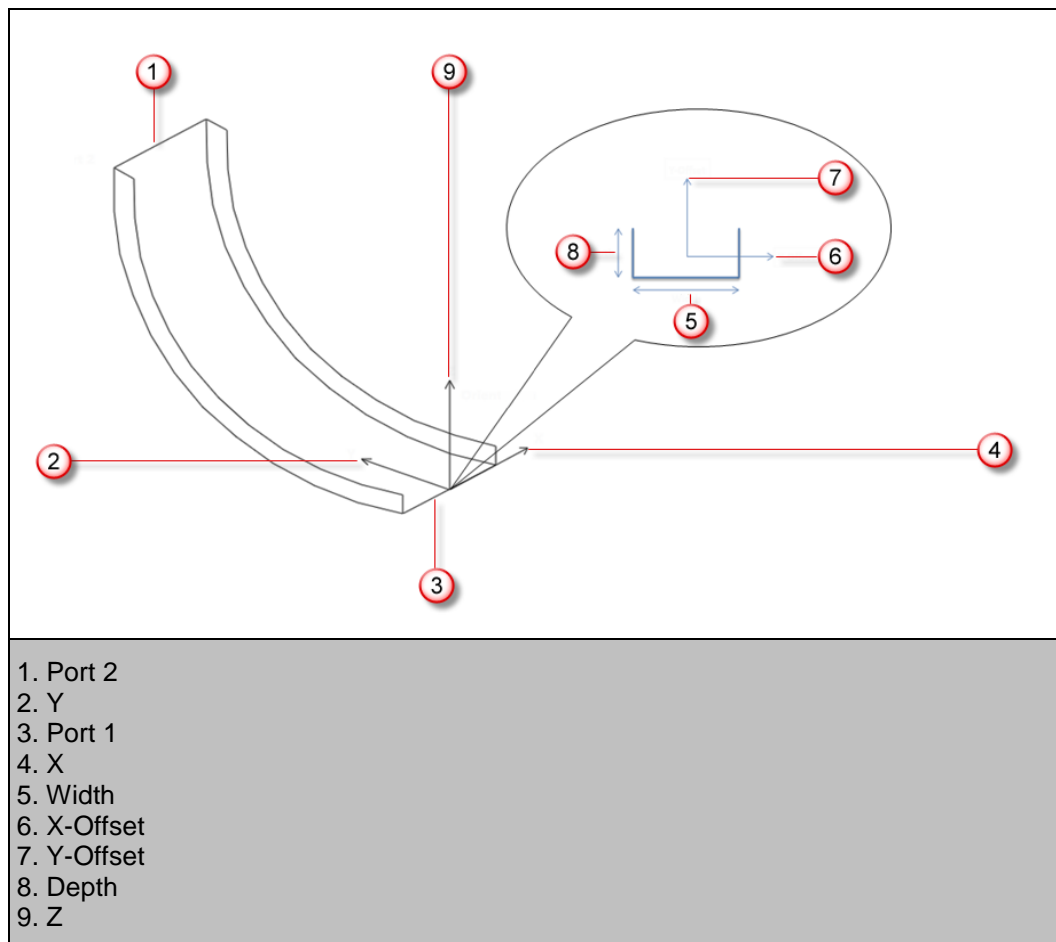
Map cableway object placement mismatches for import

When importing electrical data, Smart 3D imports the *center* position of the cross-section from the PDMS .datal file. However, during export, PDMS uses the *bottom-center* of the cross-section to place the cableway objects, resulting in an unintended offset. To correct this system difference, you must use the mapping workflow below before importing electrical data from PDMS to Smart 3D.

1. Open the **ElectricalRunSpecAdditionalAttr** electrical translation mapping file.

NOTE The **ElectricalRunSpecAdditionalAttr** mapping file is located in the S3DPDMSExportMapping.xls workbook. By default, this workbook is delivered in the [Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport folder during setup.

2. Map the offset values for each specification. Use the example below to map the X-Offset and Y-Offset values:



NOTES

- X-Offset (6) represents the offset distance along the width of the cable tray cross section.
- Y-Offset (7) represents the offset distance along the depth of the cable tray cross section.
- Orientation is the direction along the cable tray depth (8) at port 1 (3).
- If the orientation for a component changes, map the new orientation at the component level in the **ElectricalComponentAddAttrMap** sheet. For more information, see *ElectricalComponentSPREFMap* (on page 216).

APPENDIX A

Appendix: Smart 3D Export to PDMS Workbook

The **File > Export > PDMS Data Export > Export Model** command uses the Microsoft Excel workbook **S3DPDMSEExportMapping.xls** to map all of the Smart 3D objects and object properties to the corresponding objects in PDMS. By default, the workbook is delivered in the *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDMSEExport* folder during setup.

The **S3DPDMSEExportMapping.xls** workbook consists of all required types of translation mapping worksheets. Before you export Smart 3D model data, you must modify these mapping worksheets to ensure that all of the necessary criteria have been met.

The **S3DPDMSEExportMapping_DIN.xls** workbook is also delivered in the *[Reference Data Folder]\SharedContent\Data\Translators\S3DPDMSEExport* folder during setup. Default mapping is done according to the DIN standards for structural cross-sections.

See the comments in the delivered mapping file sheets for more information on configuring the mapping files.

- *Electrical Translation Maps* (on page 111)
- *Equipment Translation Maps* (on page 116)
- *Hierarchy Translation Maps* (on page 124)
- *HVAC Translation Maps* (on page 130)
- *Piping Translation Maps* (on page 134)
- *Structure Translation Maps* (on page 144)
- *Supports Translation Maps* (on page 164)
- *Units Translation Maps* (on page 167)

Common Mapping Attribute Settings

When modifying the translation mapping worksheets, some of the data columns are specific to that individual worksheet. Other data columns are common amongst many mapping worksheets. When you modify a mapping worksheet, you may see any, or all, of the data columns listed below.

MapType

Indicates the map type of the attribute. Acceptable values are:

- **NameDef** specifies that the value needs to be directly transferred. For example, an attribute named **Name** exists in the source system and an identical attribute named **Name** exists in the target system. Because both attributes have the same meaning, the value only needs to be transferred between the two systems. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** specifies that the value of an attribute must be mapped before it is transferred.
- **AdditionalAttributeDef** specifies that you must create new or additional attributes for the value of a given attribute.
- **PatternDef** specifies that the creation of a new attribute value is to be based on a specific pattern.
 - *n* - Variable number of digits in a numeric field.
 - *?* - Wild card. Matches any single printable character.
 - *** - Wild token. Matches any number of printable characters.
 - *[]* - Literal character match. Matches the character that appears within the brackets. For example, **[N]** matches the upper case character, **N**.
 - *~* - Reverse pattern match. For example, **AA-NNN~** matches AA-NNN or NNN-AA.
- **CharacterDef** splits the value of an attribute using a delimiter or character position and string length to generate new attributes.

SheetName

Identifies the name of the sheet in the PDMSS3DImportMapping.xls workbook that contains additional mapping information related to the attribute, if any exists.

Formula

Defines the formula Smart 3D uses to calculate the value of the attribute to map, if one is needed. For example, if the source system has an attribute **Radius** that needs to be mapped to the destination system's attribute **Diameter**, the software cannot substitute one value for the other. Instead the value used for **Diameter** would result from the following calculation: *Diameter* = 2 * *Radius*.

Value

Defines the value to set for the Smart 3D attribute, or defines the PDMS value that needs additional mapping.

Label

Specifies whether the Smart 3D attribute is a label. Type **TRUE/YES** or **FALSE/NO**. Entries can be in lowercase or uppercase. For more information, see *Map equipment attributes using labels* (see "Export equipment attributes using labels" on page 89).

Ignore

Specifies whether the item is ignored during import. Type **TRUE/YES** or **FALSE/NO**. Entries can be in lowercase or uppercase.

Remarks

Specifies any additional information regarding the data being mapped.

See Also

Set up the PDMS and Smart 3D Catalogs (see "Define matching reference data" on page 41)

Electrical Translation Maps

Use the electrical translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D electrical properties to the correct PDMS electrical attributes. Before exporting Smart 3D electrical model data to PDMS, you must modify these sheets to ensure that all of the catalog electrical components in the Smart 3D model are mapped to corresponding electrical component objects in PDMS.

★ **IMPORTANT** After mapping is completed in the **S3DPDMSExportMapping.xls** workbook, run the **PDMS Export Validation** command to validate the mapping data in the workbook. Any missing entries reported by the validation tool should be resolved. For more information, see PDMS Export Validation.

The following electrical translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

ElectricalClassMap

Maps the supported electrical classes between Smart 3D and PDMS. This is the main mapping sheet for the electrical discipline. For more information, see *ElectricalClassMap* (on page 113).

CPElectricalSystemAttrMap

Maps electrical system attributes between Smart 3D and PDMS. For more information, see *CPElectricalSystemAttrMap* (on page 113).

CPCablewayAttrMap

Maps cableway attributes in Smart 3D to electrical branches in PDMS. For more information, see *CPCablewayAttrMap* (on page 113).

CPRteCableTrayComponentAttrMap

Maps electrical component attributes between Smart 3D and PDMS. For more information, see *CPRteCableTrayComponentAttrMap* (on page 114).

ElectricalSupportAttrsMap

Maps electrical support attributes between Smart 3D and PDMS. For more information, see *ElectricalSupportAttrsMap* (on page 114).

ElectricalGlobalsMap

Defines the global settings for electrical export. For more information, see *ElectricalGlobalsMap* (on page 114).

ElectricalRunSpecMap

Maps electrical tray specification names between Smart 3D and PDMS. For more information, see *ElectricalRunSpecMap* (on page 114).

ElectricalRunSpecAdditionalAttr

Provides additional attribute mapping for the PDMS electrical tray specification. For more information, see *ElectricalRunSpecAdditionalAttr* (on page 115).

ElectricalPartIdentifierMap

Maps Smart 3D electrical part identifiers to PDMS GTypes. For more information, see *ElectricalPartIdentifierMap* (on page 115).

ElectricalComponentSPREFMap

Defines the mapping between the unique string created for Smart 3D electrical components and the PDMS **SPREF** attribute. For more information, see *ElectricalComponentSPREFMap* (on page 115).

ElectricalClassMap

The **ElectricalClassMap** sheet displays the electrical class mapping between Smart 3D and PDMS. The electrical classes that are displayed on this sheet are the only ones that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D electrical class to map.

PDMS Class Name

Displays the PDMS electrical class to which the **S3D Class Value Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExport.xls** workbook that maps Smart 3D electrical class properties to PDMS.

CPElectricalSystemAttrMap

The **CPElectricalSystemAttrMap** sheet maps electrical system attributes between Smart 3D and PDMS.

S3D Attribute

Defines the Smart 3D electrical system attribute to map.

PDMS Attribute

Defines the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPCablewayAttrMap

The **CPCablewayAttrMap** sheet maps cable way attributes between Smart 3D and PDMS.

S3D Attribute

Defines the Smart 3D cable way attribute to map.

PDMS Attribute

Defines the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPRteCableTrayComponentAttrMap

The **CPRteCableTrayComponentAttrMap** sheet maps electrical component attributes between Smart 3D and PDMS.

S3D Attribute

Defines the Smart 3D electrical component attribute to map.

PDMS Attribute

Defines the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

ElectricalSupportAttrsMap

The **ElectricalSupportAttrsMap** sheet maps electrical support attributes between Smart 3D and PDMS.

S3D Value

Defines the name of the Smart 3D electrical support to map.

PDMS Value

Defines the name of the PDMS attribute to which the **S3D Value** setting is to be mapped.

ElectricalGlobalsMap

The **ElectricalGlobalsMap** sheet displays mapping between Smart 3D **PartIdentifier**, **CatalogComponentUniqueCode**, **Spec**, and **PartNumber** properties and PDMS. The first three properties cross-reference their respective value mapping sheets, and the last property cross-references its additional attribute sheet.

★ **IMPORTANT** The values contained on this sheet define the global settings for Electrical model export and should not be modified.

S3D Attribute

Defines the name of the Smart 3D attribute to map.

PDMS Attribute

Defines the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

ElectricalRunSpecMap

The **ElectricalRunSpecMap** sheet maps electrical specification names between Smart 3D and PDMS.

S3D Value - Defines the value for the Smart 3D electrical specification to map.

PDMS Value

Defines the value for the PDMS specification to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

ElectricalRunSpecAdditionalAttr

Provides additional attribute mapping for the PDMS electrical tray specification.

PDMS Value

Type the PDMS specification.

PDMS Attribute

Type the PDMS attribute to which the **PDMS Value** setting is to be mapped.

Attribute Value

Type the value for the attribute.

ElectricalPartIdentifierMap

The **ElectricalPartIdentifierMap** sheet maps attributes between Smart 3D part identifiers and PDMS GTypes.

S3D Attribute

Defines the Smart 3D part identifier to map.

PDMS Attribute

Defines the name of the PDMS GType to which the **S3D Attribute** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

ElectricalComponentSPREFMap

The **ElectricalComponentSPREFMap** sheet defines mapping between Smart 3D part numbers of electrical components and the PDMS **SPREF** attribute.

S3D Value

Defines the part number or a concatenated string for the tray, tray bend, or gasket that includes the specification name and electrical component type.

PDMS Value

Defines the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

Equipment Translation Maps

Use the equipment translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D equipment properties to the correct PDMS equipment attributes. Before exporting Smart 3D equipment model data to PDMS, you must modify these mapping sheets to ensure that the following criteria have been met:

- All of the catalog equipment objects in the Smart 3D model are mapped to corresponding equipment objects in PDMS.
- All of the shapes in the Smart 3D model are mapped to corresponding primitives in PDMS.
- All of the nozzles in the Smart 3D model are mapped to corresponding nozzles in PDMS. This is mandatory for the transfer of nozzles from Smart 3D regardless of the options that are defined in the `PDMSExportTranslation.ini` file.

★ **IMPORTANT** After all of the mapping is completed in the **S3DPDMSExportMapping.xls** workbook, run the **PDMS Export Validation** command to validate the mapping data in the workbook. Any missing entries reported by the validation tool should be resolved. For more information, see [PDMS Export Validation](#).

The following equipment translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

EquipmentClassMap

Maps the supported equipment classes between Smart 3D and PDMS. This is the main mapping sheet for the equipment discipline. For more information, see [EquipmentClassMap](#) (on page 118).

CPSmartEquipmentMap

Maps equipment attributes between Smart 3D and PDMS. For more information, see [CPSmartEquipmentMap](#) (on page 118).

CPEquipmentComptMap

Maps equipment component attributes between Smart 3D and PDMS. For more information, see [CPEquipmentComptMap](#) (on page 118).

CPShapeMap

Contains the mapping between the Smart 3D Shape class and the equivalent PDMS primitive (`GeometricPrimitive` class). For more information, see [CPShapeMap](#) (on page 119).

CPPipeNozzleMap

Maps pipe nozzle attributes between Smart 3D and PDMS. For more information, see [CPPipeNozzleMap](#) (on page 119).

CPHVACNozzleMap

Maps HVAC nozzle attributes between Smart 3D and PDMS. For more information, see [CPHVACNozzleMap](#) (on page 119).

CPConduitNozzleMap

Maps conduit nozzle attributes between Smart 3D and PDMS. For more information, see [CPConduitNozzleMap](#) (on page 119).

CPCableTrayNozzleMap

Maps cable tray nozzle attributes between Smart 3D and PDMS. For more information, see *CPCableTrayNozzleMap* (on page 120).

CPStraightNozzleCatRefMap

Contains concatenated values for **NPD**, **EndPreparation** and **PressureRating** properties, which are mapped to the PDMS CATRef attribute values for piping straight nozzles. For more information, see *CPStraightNozzleCatRefMap* (on page 120).

CPElbowNozzleCAtRefMap

Contains concatenated values for **NPD**, **EndPreparation** and **PressureRating** properties, which are mapped to the PDMS CATRef attribute values for piping elbow nozzles. For more information, see *CPElbowNozzleCAtRefMap* (on page 120).

CPHvacNozzleCatRefMap

Contains concatenated values for Smart 3D **Width**, **Cross-section**, and **EndPreparation** of the HVAC nozzle, which are mapped to their corresponding nozzle **CATRef** values in PDMS. For more information, see *CPHvacNozzleCatRefMap* (on page 121).

EquipGlobalsMap

Contains mapping for Smart 3D **PartNumber**, **PartClass** and **NozzleType** properties. The first two properties cross-reference their respective value mapping sheets, and the last property cross-references an additional attribute sheet. For more information, see *EquipGlobalsMap* (on page 121).

PartNumberValueMap

Maps Smart 3D part numbers to PDMS. A cross-reference to an additional attribute sheet is also provided. For more information, see *PartNumberValueMap* (on page 121).

PartNumberAdditionalAttributes

Contains additional properties for Smart 3D part numbers and cross-references to additional attribute sheets containing design parameters. For more information, see *PartNumberAdditionalAttributes* (on page 121).

DesParamAdditionalAttrMap

Contains additional properties, or design parameters, for different part numbers. For more information, see *DesParamAdditionalAttrMap* (on page 122).

AspectMap

Contains mapping between the codelist value of the Smart 3D aspect and the LEVE value in PDMS. For more information, see *AspectMap* (on page 122).

AspectAdditionalAttributes

Contains additional attributes for PDMS LEVE values. For more information, see *AspectAdditionalAttributes* (on page 122).

CPShapeValueMap

Contains the mapping between the shape PartClass in Smart 3D and the equivalent PDMS primitive. For more information, see *CPShapeValueMap* (on page 123).

CPShapeAdditionalAttributes

Contains additional attributes for PDMS primitives. The part class of the shape is mapped to the corresponding name of the primitive in the **CPShapeValueMap** sheet. For more information, see *CPShapeAdditionalAttributes* (on page 123).

CPNozzleAdditionalAttribute

Maps Smart 3D nozzle parameters to PDMS attributes. For more information, see *CPNozzleAdditionalAttributes* (on page 123).

NozzDesParamAdditionalAttrMap

Contains design parameter values for HVAC nozzles. Design parameters for HVAC nozzles vary according to the nozzle cross-section, like rectangular, flat oval, and round. For more information, see *NozzDesParamAdditionalAttrMap* (on page 124).

EquipmentClassMap

The **EquipmentClassMap** sheet displays the equipment class mapping between Smart 3D and PDMS. The equipment classes that are displayed on this sheet are the only ones that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D equipment class to map.

PDMS Class Name

Displays the PDMS equipment class to which the **S3D Class Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExport.xls** workbook that maps the Smart 3D equipment class properties to PDMS.

CPSmartEquipmentMap

The **CPSmartEquipmentMap** sheet maps equipment attributes between Smart 3D and PDMS.

S3D Attribute - Type the name of the Smart 3D equipment property to map.

PDMS Attribute - Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPEquipmentComptMap

The **CPEquipmentComptMap** sheet maps equipment component attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D equipment component property to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPShapeMap

The **CPShapeMap** sheet contains the attribute mapping between the Smart 3D shape and the equivalent PDMS primitive.

S3D Attribute

Type the name of the Smart 3D shape property to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPPipeNozzleMap

The **CPPipeNozzleMap** sheet maps pipe elbow nozzle attributes between Smart 3D and PDMS. Fixed attributes **Elbow Pipe Nozzle** and **Straight Pipe Nozzle** have **ValueDef** maps that are the concatenated values of NPD, end preparation, and pressure rating of the piping straight nozzle and piping elbow nozzle respectively, which cross-references the **CPElbowNozzleCatRefMap** and **CPStraightNozzleCatRefMap** sheets respectively

S3D Attribute

Type the name of the Smart 3D pipe property to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPHVACNozzleMap

The **CPHVACNozzleMap** sheet maps HVAC nozzle attributes between Smart 3D and PDMS. Fixed attributes **Rectangular**, **Flat Oval**, and **Round Nozzle** have **ValueDef** maps that are the concatenated values of **Width**, **Cross-section** and **EndPreparation** of the HVAC nozzle, which cross-references the **CPHvacNozzleCatRefMap** sheet.

S3D Attribute

Type the name of the Smart 3D HVAC nozzle property to map.

PDMS Attribute

Type the name of the PDMS attribute to the **S3D Attribute** setting is to be mapped.

CPConduitNozzleMap

The **CPConduitNozzleMap** sheet maps conduit nozzle attributes between Smart 3D and PDMS. Fixed attribute **StraightNozzle** has **ValueDef** maps that are concatenated values of **NCD** and **EndPreparation** of the conduit nozzle, which cross-references the **CPStraightConduitNozzCatRefMap** sheet.

S3D Attribute

Type the name of the Smart 3D conduit nozzle property to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPCableTrayNozzleMap

The **CPCableTrayNozzleMap** sheet maps cable tray nozzle attributes between Smart 3D and PDMS. Fixed attribute **Rectangular** nozzle has a **ValueDef** map that is the concatenated values of **Nominal Width** and **Nominal Depth** of the cable tray nozzle, which cross-references the **CPCableTrayNozzleCatRefMap** sheet.

S3D Attribute

Type the name of the Smart 3D cable tray nozzle property to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPStraightNozzleCatRefMap

The **CPStraightNozzleCatRefMap** sheet contains concatenated values for Smart 3D **NPD**, **EndPreparation** and **PressureRating** properties. These values are mapped to their corresponding nozzle **CATRef** values in PDMS.

S3D Value

Type the Smart 3D parameter to map.

PDMS Attribute

Type the **CATRef** value.

Attribute Value

Type the PDMS **CATRef** attribute value.

CPElbowNozzleCatRefMap

The **CPElbowNozzleCatRefMap** sheet contains concatenated values for Smart 3D **NPD**, **EndPreparation** and **PressureRating** properties. These values are mapped to their corresponding nozzle **CATRef** values in PDMS.

S3D Value

Type the Smart 3D parameter to map.

PDMS Attribute

Type the **CATRef** value.

Attribute Value

Type the PDMS **CATRef** attribute value.

CPHvacNozzleCatRefMap

The **CPHvacNozzleCatRefMap** sheet contains concatenated values for Smart 3D **Width**, **Cross-section** and **EndPreparation** of the HVAC nozzle. These values are mapped to their corresponding nozzle **CATRef** values in PDMS.

S3D Value

Type the Smart 3D concatenated values to map.

PDMS Value

Type the PDMS **CatRef** attribute value.

EquipGlobalsMap

The **EquipGlobalsMap** sheet displays mapping between Smart 3D **PartNumber**, **PartClass** and **NozzleType** properties and PDMS. The first two properties cross-reference their respective value mapping sheets, and the last property cross-references its additional attribute sheet.

★ **IMPORTANT** The values contained on this sheet define the global settings for equipment model export and should *not* be modified.

S3D Attribute

Displays the name of the Smart 3D attribute to map.

PDMS Attribute

Displays the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PartNumberValueMap

The **PartNumberValueMap** sheet maps Smart 3D part numbers to PDMS. A cross-reference to the corresponding additional attributes sheet is also provided.

S3D Value

Type the Smart 3D part number to map.

PDMS Value

Type the PDMS part number to which the **S3D Value** setting is to be mapped.

PartNumberAdditionalAttributes

The **PartNumberAdditionalAttributes** sheet maps additional attributes for PDMS part numbers. Each additional attribute includes a cross-reference to its additional attribute sheet, which contains design parameters.

PDMS Value

Type the PDMS part number to map.

PDMS Attribute

Type the PDMS attribute to which the **PDMS Value** setting is to be mapped.

Attribute Value

Type the required attribute value.

DesParamAdditionalAttrMap

The **DesParamAdditionalAttrMap** sheet maps additional attributes for PDMS part numbers. Each additional attribute cross-references to its additional attribute sheet containing design parameters.

PDMS Value

Type the PDMS part number to map.

PDMS Attribute

Type the PDMS attribute to which the **PDMS Value** setting is to be mapped.

Attribute Value

Type the required attribute value.

AspectMap

The **AspectMap** sheet maps the codelist value of the aspect in Smart 3D to the LEVE value in PDMS.

S3D Value

Type the codelist value of the aspect to be mapped.

PDMS Value

Type the LEVE value in PDMS for the corresponding aspect.

AspectAdditionalAttributes

The **AspectAdditionalAttributes** sheet maps additional attributes, such as obstructions (OBST), to different LEVE values in PDMS.

PDMS Value

Type the PDMS LEVE value.

PDMS Attribute

Type the PDMS attribute to which **PDMS Value** is mapped.

Attribute Value

Type the required value for the attribute.

CPShapeValueMap

The **CPShapeValueMap** sheet maps the shape part class to the corresponding PDMS primitive.

S3D Value

Type the Smart 3D shape part class to map.

PDMS Value

Type the PDMS primitive name to which the **S3D Value** setting is to be mapped.

CPShapeAdditionalAttributes

The **CPShapeAdditionalAttributes** sheet maps additional attributes for PDMS primitives. The part class of the shape is mapped to the corresponding name of the primitive in the **CPShapeValueMap** sheet.

PDMS Value

Type the PDMS primitive type.

Attribute Name

Type the name of the PDMS attribute to which the **PDMS Value** setting is to be mapped.

Attribute Value

Type the required value for the attribute.

CPNozzleAdditionalAttributes

The **CPNozzleAdditionalAttributes** sheet maps Smart 3D nozzle parameters to PDMS attributes.

S3D Value

Type the Smart 3D nozzle parameter to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Value** setting is to be mapped.

Attribute Value

Type the required attribute value.

NozzDesParamAdditionalAttrMap

The **NozzDesParamAdditionalAttrMap** sheet maps additional design parameters for PDMS HVAC nozzles. Each design parameters is mapped to its value in Smart 3D.

S3D Value

Type the Smart 3D nozzle to map.

PDMS Attribute

Type the PDMS attribute to which the **S3D Value** setting is to be mapped.

Attribute Value

Type the required attribute value.

Hierarchy Translation Maps

Use the hierarchy translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D hierarchy properties to the correct PDMS hierarchy attributes.

NOTE You can use PDMS UDETs (User Defined Element Types) to create a hierarchy similar to that of the Smart 3D hierarchy. Before importing the UDETs defined in the mapping file, you must create them in PDMS. The delivered mapping sheet has all Smart 3D systems under the Smart 3D Class Name. You must define all the required UDETS, map them correspondingly to those from Smart 3D, and then export the model to the PDMS DATAL file. When imported, the generated DATAL file emulates the Smart 3D hierarchy in PDMS.

The following hierarchy translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

Hierarchy Class Map

Maps the supported hierarchy classes between Smart 3D and PDMS. This is the main mapping sheet for the hierarchy discipline. For more information, see *HierarchyClassMap* (on page 126).

NOTE PDMS versions 12.0 SP4 and later support multi-level hierarchy, allowing you to export the Smart 3D hierarchy.

CPMSystemMap

Maps system attributes between Smart 3D and PDMS. For more information, see *CPMSystemMap* (on page 126).

CPAreaSystemMap

Maps area system attributes between Smart 3D and PDMS. For more information, see *CPAreaSystemMap* (on page 126).

CPConduitSystemMap

Maps conduit system attributes between Smart 3D and PDMS. For more information, see *CPConduitSystemMap* (on page 127).

CPDuctingSystemMap

Maps ducting system attributes between Smart 3D and PDMS. For more information, see *CPDuctingSystemMap* (on page 127).

CPElectricalSystemMap

Maps electrical system attributes between Smart 3D and PDMS. For more information, see *CPElectricalSystemMap* (on page 127).

CPMachinerySystemMap

Maps machinery system attributes between Smart 3D and PDMS. For more information, see *CPMachinerySystemMap* (on page 127).

CPPipelineSystemMapEx

Maps pipeline system attributes between Smart 3D and PDMS. For more information, see *CPPipelineSystemMapEx* (on page 128).

CPPipingSystemMap

Maps piping system attributes between Smart 3D and PDMS. For more information, see *CPPipingSystemMap* (on page 128).

CPStructuralSystemMap

Maps structural system attributes between Smart 3D and PDMS. For more information, see *CPStructuralSystemMap* (on page 128).

CPUnitSystemMap

Maps unit system attributes between Smart 3D and PDMS. For more information, see *CPUnitSystemMap* (on page 128).

CustomizeS3DHierarchyMap

Maps the Smart 3D objects hierarchy to user-specified PDMS SITE and ZONE names. For more information, see *CustomizeS3DHierarchyMap* (on page 129).

HierarchyClassMap

The **HierarchyClassMap** sheet displays the hierarchy class mapping between Smart 3D and PDMS. The hierarchy classes that are displayed on this sheet are the only ones that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D hierarchy class to map.

PDMS Class Name

Displays the PDMS hierarchy class to which the **S3D Class Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExport.xls** workbook that maps Smart 3D hierarchy class properties to PDMS.

CPMSystemMap

The **CPMSystemMap** sheet maps system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPAreaSystemMap

The **CPAreaSystemMap** sheet maps area system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D area system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPConduitSystemMap

The **CPConduitSystemMap** sheet maps conduit system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D conduit system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPDuctingSystemMap

The **CPDuctingSystemMap** sheet maps ducting system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D ducting system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPElectricalSystemMap

The **CPElectricalSystemMap** sheet maps electrical system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D electrical system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** value is to be mapped.

CPMachinerySystemMap

The **CPMachinerySystemMap** sheet maps machinery system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D machinery system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPPipelineSystemMapEx

The **CPPipelineSystemMapEx** sheet maps pipeline system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D pipeline system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPPipingSystemMap

The **CPPipingSystemMap** sheet maps piping system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D piping system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPStructuralSystemMap

The **CPStructuralSystemMap** sheet maps structural system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D structural system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPUnitSystemMap

The **CPUnitSystemMap** sheet maps unit system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D unit system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CustomizeS3DHierarchyMap

The **CustomizeS3DHierarchyMap** sheet maps the Smart 3D objects hierarchy with PDMS SITE and ZONE names. The software only uses the information that you specify in this mapping sheet when you set **ExportHierarchyAs** to **HIER_MAPPING** in the PDMS export initialization file. For more information, see *Configure the PDMS export initialization file* (on page 30).

S3D Hierarchy

Type the Smart 3D objects hierarchy being exported to PDMS.

PDMS Zone

Type the name of the PDMS ZONE under which the specified Smart 3D objects hierarchy is to be exported.

PDMS Site

Type the name of the PDMS SITE under which the specified Smart 3D objects hierarchy to be exported.

NOTE In PDMS, a SITE is the first hierarchical level under the root node. A ZONE is a second hierarchical level under which modeled objects such as equipment or piping structures are placed.

HVAC Translation Maps

Use the HVAC translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D HVAC properties to the correct PDMS HVAC attributes. Before exporting Smart 3D HVAC model data to PDMS, you must modify these sheets to ensure that the following criteria have been met:

- All of the components in the Smart 3D model are mapped to corresponding components in PDMS.
- All of the gaskets, stock parts, bends, and supports in the Smart 3D model are mapped to corresponding items in PDMS.
- Specifications and end preparations are mapped between the two systems.

After all of the mapping is completed in the **S3DPDMSExportMapping.xls** workbook, run the **PDMS Export Validation** command to validate the mapping data in the workbook. Any missing entries reported by the validation tool should be resolved. For more information, see PDMS Export Validation.

The following HVAC translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

HVACClassMap

Maps the supported HVAC classes between Smart 3D and PDMS. This is the main mapping sheet for the HVAC discipline. For more information, see *HVACClassMap* (on page 131).

CPDuctingSystemAttrMap

Maps Ducting system attributes from Smart 3D to that of the HVAC in PDMS. For more information, see *CPDuctingSystemAttrMap* (on page 131).

CPMSystemAttrMap

Maps Generic system attributes from Smart 3D to that of the HVAC in PDMS. For more information, see *CPMSystemAttrMap* (on page 132).

CPDuctRunAttrMap

Maps HVAC run properties from Smart 3D to that of the BRANCH in PDMS. For more information, see *CPDuctRunAttrMap* (on page 132).

DuctComponentAttrMap

Maps HVAC component properties from Smart 3D to PDMS. For more information, see *DuctComponentAttrMap* (on page 132).

DuctSupportAttrMap

Maps HVAC support properties from Smart 3D to PDMS. For more information, see *DuctSupportAttrMap* (on page 132).

DesignSupportAttrMap

Maps HVAC design support properties from Smart 3D to PDMS. For more information, see *DesignSupportAttrMap* (on page 133).

HVACGlobalsMap

Defines the global settings for HVAC export. For more information, see *HVACGlobalsMap* (on page 133).

DuctRunSpecMap

Maps HVAC specification names between Smart 3D and PDMS. For more information, see *DuctRunSpecMap* (on page 134).

HVACPartIdentifierMap

Maps Smart 3D part identifier to PDMS GTypes. For more information, see *HVACPartIdentifierMap* (on page 133).

HVACComponentSPREFMap

Defines the mapping between the unique string created for Smart 3D piping components and the PDMS **SPREF** attribute. For more information, see *HVACComponentSPREFMap* (on page 134).

HVACEndConnectionMap

Maps end connections between Smart 3D and PDMS. For more information, see *HVACEndPreparationMap* (on page 133).

HVACDesParamMap

Maps component occurrence attributes from Smart 3D to PDMS DESP parameters. For more information, see *HVACDesParamMap* (on page 134).

HVACClassMap

The **HVACClassMap** sheet defines the HVAC class mapping between Smart 3D and PDMS. The HVAC classes that are displayed on the **HVACClassMap** sheet are the only ones that are currently supported for export to PDMS. Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D piping class to map.

PDMS Class Name

Displays the PDMS piping class to which the **S3D Class Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExportMapping.xls** workbook that maps Smart 3D HVAC class attributes to PDMS.

CPDuctingSystemAttrMap

The **CPDuctingSystemAttrMap** sheet maps ducting system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D ducting system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPMSystemAttrMap

The **CPMSystemAttrMap** sheet maps Generic system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D Generic system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPDuctRunAttrMap

The **CPDuctRunAttrMap** sheet maps duct run attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D duct run attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

DuctComponentAttrsMap

The **DuctComponentAttrsMap** sheet maps duct component attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D duct component attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

DuctSupportAttrsMap

The **DuctSupportAttrsMap** sheet maps duct support attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D duct support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

DesignSupportAttrsMap

The **DuctComponentAttrsMap** sheet maps design support attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D design support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

HVACGlobalsMap

The **HVACGlobalsMap** sheet displays mapping between Smart 3D **S3DPartIdentifier**, **S3DEndConnection**, **S3DCatalogComponentUniqueCode**, **Spec**, and **S3DPartNumber** properties and PDMS. The first four properties cross-reference their respective value mapping sheets, and the last property cross-references its additional attribute sheet.

The values contained on this sheet define the global settings for HVAC model export and should not be modified.

S3D Attribute

Displays the name of the Smart 3D attribute to map.

PDMS Attribute

Displays the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

HVACPartIdentifierMap

The **HVACPartIdentifierMap** sheet maps attributes between Smart 3D part identifiers and PDMS GTypes.

S3D Attribute

Type the Smart 3D part identifier to map.

PDMS Attribute

Type the name of the PDMS GType to which the **S3D Attribute** setting is to be mapped.

HVACEndPreparationMap

The **HVACEndPreparationMap** sheet maps end preparation values between Smart 3D and PDMS.

S3D Value

Type the Smart 3D end preparation value to map.

PDMS Value

Type the PDMS end preparation value to which the **S3D Value** setting is to be mapped.

HVACComponentSPREFMap

The **HVACComponentSPREFMap** sheet defines mapping between Smart 3D part numbers of HVAC components and the PDMS **SPREF** attribute.

S3D Value

For ducts, duct bends, supports, and gaskets, this value can be a part number or a concatenated string that includes the specification name, HVAC component type (ducting/duct bend/duct support/gasket), cross section type (round/rectangular/oval/flat oval/UShape), width, and depth, separated by a dash "-". For example, you can type **Lindab Spec-Ducting-Round-100-100**.

PDMS Value

Type the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped.

DuctRunSpecMap

The **DuctRunSpecMap** sheet maps HVAC specification names between Smart 3D and PDMS.

S3D Value

Type the name of the Smart 3D HVAC specification to map.

PDMS Value

Type the name of the PDMS specification to which the **S3D Value** setting is to be mapped.

HVACDesParamMap

The **HVACDesParamMap** sheet maps additional attributes for PDMS **SpecRef** attributes.

PDMS Value

Type the PDMS **SpecRef** attribute to map.

PDMS Attribute

Type the PDMS attribute that is created as an additional attributes for **PDMS Value**.

Attribute Value

Type the required attribute value.

Piping Translation Maps

Use the piping translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D piping properties to the correct PDMS piping attributes. Before exporting Smart 3D piping model data to PDMS, you must modify these sheets to ensure that the following criteria have been met:

- All of the components in the Smart 3D model are mapped to corresponding components in PDMS.
- All of the Smart 3D piping specialties and instruments are mapped to corresponding PCOMPs and INSTs in PDMS.
- All of the gaskets in the Smart 3D model are mapped to corresponding gaskets in PDMS.
- Pipe stock from Smart 3D and PDMS are mapped.

★ **IMPORTANT** After all of the mapping is completed in the **S3DPDMSExportMapping.xls** workbook, run the **PDMS Export Validation** command to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see PDMS Export Validation.

The following piping translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

PipingClassMap

Maps the supported piping classes between Smart 3D and PDMS. This is the main mapping sheet for the piping discipline. For more information, see *PipingClassMap* (on page 137).

CPPipelineSystemMap

Maps pipeline system attributes between Smart 3D and PDMS. For more information, see *CPPipelineSystemMap* (on page 137).

CPMPipeRunMap

Maps pipe run attributes between Smart 3D and PDMS. For more information, see *CPMPipeRunMap* (on page 137).

PipingGlobalsMap

Defines the global settings for piping export. For more information, see *PipingGlobalsMap* (on page 138).

PipeRunSpecMap

Maps piping specification names between Smart 3D and PDMS. For more information, see *PipeRunSpecMap* (on page 138).

S3DPartIdentifierMap

Maps Smart 3D part identifier properties and PDMS GTypes. For more information, see *S3DPartIdentifierMap* (on page 138).

CatalogComponentSPREFMap

Defines the mapping between the unique string created for Smart 3D piping components and the PDMS **SPREF** attribute. For more information, see *CatalogComponentSPREFMap* (on page 139).

NPDSpecificSPREFMap

Defines the mapping between the unique string created for Smart 3D piping components and the PDMS **SPREF** attribute. This sheet is used if the **SPREF** of a component changes with a given NPD. For more information, see *NPDSpecificSPREFMap* (on page 139).

CatalogSpecialtySPREFMap

Defines the mapping between the unique string created for Smart 3D catalog specialty components and the PDMS **SPREF** attribute. For more information, see *CatalogSpecialtySPREFMap* (on page 139).

CatalogInstrumentSPREFMap

Defines the mapping between the unique string created for Smart 3D catalog instrument components and the PDMS **SPREF** attribute. For more information, see *CatalogInstrumentSPREFMap* (on page 140).

OnFlySpecialtySPREFMap

Defines the mapping between the unique string created for Smart 3D on-the-fly specialty components and the PDMS **SPREF** attribute. For more information, see *OnFlySpecialtySPREFMap* (on page 140).

OnFlyInstrumentSPREFMap

Defines the mapping between the unique string created for Smart 3D on-the-fly instruments and the PDMS **SPREF** attribute. For more information, see *OnFlyInstrumentSPREFMap* (on page 141).

PipeComponentAttrsMap

Defines the attribute mapping for Smart 3D pipe components. For more information, see *PipeComponentAttrsMap* (on page 141).

PipeInstrumentAttrsMap

Defines the attribute mapping for Smart 3D pipe instruments (both catalog and on-the-fly). For more information, see *PipeInstrumentAttrsMap* (on page 142).

PipeSpecialtyAttrsMap

Defines the attribute mapping for Smart 3D pipe specialties (both catalog and on-the-fly). For more information, see *PipeSpecialtyAttrsMap* (on page 142).

PipeSupportAdditionalAttributes

Maps additional attributes, such as design parameters and adjustment matrices, for PDMS pipe attachments. For more information, see *PipeSupportAdditionalAttributes* (on page 142).

PipeSupportAttrsMap

Defines the attribute mapping for Smart 3D pipe supports. For more information, see *PipeSupportAttrsMap* (on page 142).

PipeSupportSPREFMap

Maps PDMS attachment SPREF attributes to relevant Smart 3D support component part numbers. For more information, see *PipeSupportSPREFMap* (on page 142).

PipingEndConnectionMap

Maps end connection values between Smart 3D and PDMS. For more information, see *PipingEndConnectionMap* (on page 143).

PipingConnectionItemMap

Defines the mapping between the unique string created for Smart 3D piping connection items and the PDMS **SPREF** attribute. For more information, see *PipingConnectionItemMap* (on page 143).

PipingDesParamAdditionalAttrMap

Contains additional attributes of the design parameters for on-the-fly instruments and specialty components. For more information, see *PipingDesParamAdditionalAttrMap* (on page 143).

PipingClassMap

The **PipingClassMap** sheet defines the piping class mapping between Smart 3D and PDMS. The piping classes that are displayed on the **PipingClassMap** sheet are the only ones that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D piping class to map.

PDMS Class Name

Displays the PDMS piping class to which the **S3D Class Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExport.xls** workbook that maps Smart 3D piping class properties to PDMS.

CPPipelineSystemMap

The **CPPipelineSystemMap** sheet maps pipeline system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D pipeline system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CPMPipeRunMap

The **CPMPipeRunMap** sheet maps pipe run attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D pipe run attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PipingGlobalsMap

The **PipingGlobalsMap** sheet displays mapping between Smart 3D **S3DPartIdentifier**, **S3DEndConnection**, **S3DConnectionItem**, **S3DCatalogComponentUniqueCode**, **S3DCatalogSpecialtyUniqueCode**, **S3DCatalogInstrumentUniqueCode**, **S3DOnFlyInstrumentUniqueCode**, **S3DNPDSpecificSPREFMap** properties and PDMS. The first six properties cross-reference their respective value mapping sheets, and the last property cross-references its additional attribute sheet.

★ **IMPORTANT** The values contained on this sheet define the global settings for piping model export and should **not** be modified.

S3D Attribute

Displays the name of the Smart 3D attribute to map.

PDMS Attribute

Displays the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PipeRunSpecMap

The **PipeRunSpecMap** sheet maps piping specification names between Smart 3D and PDMS.

S3D Value

Type the name of the Smart 3D piping specification to map.

PDMS Value

Type the name of the PDMS specification to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

S3DPartIdentifierMap

The **S3DPartIdentifierMap** sheet maps attributes between Smart 3D part identifiers and PDMS GTypes.

S3D Value

Type the Smart 3D part identifier to map.

PDMS Gtype

Type the name of the PDMS GType to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

CatalogComponentSPREFMap

The **CatalogComponentSPREFMap** sheet defines mapping between the unique string created for Smart 3D piping components and the PDMS **SPREF** attribute.

S3D Value

Type the Smart 3D unique string to map. The string is created by appending the Smart 3D specification name, component short code, and option code. Separate each entry with a dash (-). For example, you can type **1C0031-Piping-1** or **2C0032-Concentric Reducer-1**.

PDMS Value

Type the value for the **SPREF** attribute to the **S3D Value** setting is to be mapped. The **PDMS Value** setting may also contain the specification name prefixed to the **SPREF** attribute.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

NPDSpecificSPREFMap

The **NPDSpecificSPREFMap** sheet defines mapping between the unique string created for Smart 3D piping components and the PDMS **SPREF** attribute. This sheet is used if the **SPREF** of a component changes with a given NPD.

NOTE If no values are defined on this sheet, the software uses the values defined on the **CatalogComponentSPREFMap** sheet.

S3D Value

Type the Smart 3D unique string to map. The string is created by appending the Smart 3D specification name, component short code, option code, and NPD of each port. Separate each entry with a dash (-). For example, you can type **1C0031-Piping-1-20-20** or **1C0031-Flange-211-125-125**.

PDMS Value

Type the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

CatalogSpecialtySPREFMap

The **CatalogSpecialtySPREFMap** sheet defines the mapping between the unique string created for Smart 3D catalog specialty components and the PDMS **SPREF** attribute.

S3D Value

Type the Smart 3D unique string to map. The string is created by appending the Smart 3D tag number or generic tag number and NPD of each port. Separate each entry with a dash (-). For example, you can type **ST-1001-15-15**.

PDMS Value

Type the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped. Append the **SPREF** attribute with the piping specification in which the specialty component is defined. For example, enter **A300/NVIDBDD:[NPD1]**, where **A300** is the piping specification.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

CatalogInstrumentSPREFMap

The **CatalogInstrumentSPREFMap** sheet defines the mapping between the unique string created for Smart 3D catalog instrument components and the PDMS **SPREF** attribute.

S3D Value

Type the Smart 3D unique string to map. The string is created by appending the Smart 3D tag number or generic tag number and NPD of each port. Separate each entry with a dash (-). For example, you can type **BV-1001-15-15**.

PDMS Value

Type the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped. Append the **SPREF** attribute with the piping specification in which the instrument is defined. For example, type **A300/NVIDBDD:[NPD1]**, where **A300** is the piping specification.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

OnFlySpecialtySPREFMap

The **OnFlySpecialtySPREFMap** sheet defines the mapping between the unique string created for Smart 3D on-the-fly specialty components and the PDMS **SPREF** attribute.

S3D Value

Type the Smart 3D unique string to map. The string is created by appending the Smart 3D part number along with the end preparation, pressure rating, schedule thickness, and end standard of the specialty component ports. Separate each entry with a dash (-). For example, you can type **CS3WayBallCVal-21-35-1-5-21-35-1-5**.

PDMS Value

Type the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped. Append the **SPREF** attribute with the piping specification in which the specialty component is defined. For example, type **A300/NVIDBDD:[NPD1]**, where **A300** is the piping specification.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

OnFlyInstrumentSPREFMap

The **OnFlyInstrumentSPREFMap** sheet defines the mapping between the unique string created for Smart 3D on-the-fly instruments and the PDMS **SPREF** attribute.

S3D Value

Type the Smart 3D unique string to map. The string is created by appending the Smart 3D part number along with the end preparation, pressure rating, schedule thickness, and end standard of the instrument ports. Separate each entry with a dash (-). For example, you can type **ISSDS4-21-35-1-5-21-35-1-5**.

PDMS Value

Type the value for the **SPREF** attribute to which the **S3D Value** setting is to be mapped. Append the **SPREF** attribute with the piping specification in which the instrument is defined. For example, type **A300/NVIDBDD:[NPD1]**, where **A300** is the piping specification.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

PipeComponentAttrsMap

The **PipeComponentsAttrsMap** sheet defines attribute mapping for Smart 3D pipe components.

S3D Attribute

Type the Smart 3D pipe component attribute to map.

PDMS Attribute

Type the name of PDMS pipe component attribute to which the **S3D Attribute** setting is to be mapped.

PipeInstrumentAttrsMap

The **PipeInstrumentAttrsMap** sheet defines attribute mapping for Smart 3D pipe instruments (both Catalog and on-the-fly).

S3D Attribute

Type the Smart 3D pipe instrument attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PipeSpecialtyAttrsMap

The **PipeSpecialtyAttrsMap** sheet defines attribute mapping for Smart 3D pipe specialties (both Catalog and on-the-fly).

S3D Attribute

Type the Smart 3D pipe specialty component attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PipeSupportAdditionalAttributes

The **PipeSupportAdditionalAttributes** sheet maps additional attributes for PDMS pipe attachments, such as design parameters.

PDMS Value

Type the PDMS pipe attachment **SPREF**.

PDMS Attribute

Type the PDMS attribute name to map.

Attribute Value

Type the attribute value.

PipeSupportAttrsMap

The **PipeSupportAttrsMap** sheet defines attribute mapping for Smart 3D pipe supports.

S3D Attribute

Type the Smart 3D pipe support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PipeSupportSPREFMap

The **PipeSupportSPREFMap** sheet maps PDMS attachment SPREF attributes to relevant Smart 3D support component part numbers.

S3D Value

Type the part number of the Smart 3D support component to map.

PDMS Value

Type the PDMS pipe support **SPREF** attribute to which the **S3D Value** is mapped.

PipingEndConnectionMap

The **PipingEndConnectionMap** sheet maps end connection values between Smart 3D and PDMS.

S3D Value

Type the Smart 3D end connection value to map. This value can be a combined string of **End Connection** and **Pressure Rating**, along with any other property.

PDMS Value

Type the PDMS end connection value to which the **S3D Value** setting is to be mapped.

PipingConnectionItemMap

Defines the mapping between the unique string created for the Smart 3D connection item and the PDMS **SPREF** attribute.

S3D Value

Type the Smart 3D unique string to be mapped. The string is created by appending the Smart 3D specification name, component short code, and option code, along with any other specified property. Separate each entry with a dash (-). For example, you can enter **1C0031-Gasket-1-35** or **2C0032-Weld-1-80**.

PDMS Value

Type the **SPREF** attribute value to which the **S3D Value** setting is to be mapped.

Remarks

Specifies any additional information about the default delivered mapping.

PipingDesParamAdditionalAttrMap

The **PipingDesParamAdditionalAttrMap** sheet maps additional attributes of design parameters for on-the-fly instruments and specialty components.

PDMS Value

Type the PDMS **SPRE** of the on-the-fly instrument or specialty component.

PDMS Attribute

Type the PDMS attribute to which the **PDMS Value** setting is to be mapped.

Attribute Value

Type the attribute value.

NOTE Map the additional attributes in the **PipingDesParamAdditionalAttrMap** sheet in the same order as they display in the PDMS catalog. If they are not mapped in the same order, the objects in PDMS will not match with Smart 3D graphics. If a design parameter is not mapped with its corresponding Smart 3D attribute, it is exported with the default zero value.

Structure Translation Maps

Use the structure translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D structure properties to the correct PDMS structure attributes. Before exporting Smart 3D structure model data to PDMS, you must modify these sheets to ensure that the following criteria have been met:

- All of the cross-sections and respective cardinal points in the Smart 3D model are mapped to the corresponding cross-sections and **PLine** attributes in the PDMS catalog. This is mandatory for the export of members from Smart 3D. For more information, see *Map cross-section and orientation mismatches* (on page 91).
- All of the Marine cross-sections and respective load points in the Smart 3D model are mapped to the corresponding cross-sections and PLine attributes in the PDMS catalog. This is mandatory for the export of profile parts from Smart 3D.
- In the PDMSExportTranslator.ini file, **TransferInsulationAsGTypes** is set so that insulation is exported using the mapping file, then the catalog must be set up for insulation on members. Also, all insulation encasements in the model must be created in the PDMS catalog and mapped to the corresponding fitting in PDMS.

★ **IMPORTANT** After all of the mapping is completed in the **S3DPDMSExportMapping.xls** workbook, run the **PDMS Export Validation** command to validate the mapping data in the workbook. Any missing entries reported by the validation tool should be resolved. For more information, see PDMS Export Validation.

The following structure translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

StructureClassMap

Maps the supported structure classes between Smart 3D and PDMS. This is the main mapping sheet for the structure discipline. For more information, see *StructureClassMap* (on page 149).

CoordinateSystemMap

Maps coordinate system attributes between Smart 3D and PDMS. For more information, see *CoordinateSystemMap* (on page 150).

ElevationPlaneMap

Maps elevation plane attributes between Smart 3D and PDMS. For more information, see *ElevationPlaneMap* (on page 150).

GridLineMap

Maps grid line attributes between Smart 3D and PDMS. For more information, see *GridLineMap* (on page 150).

LinearMemberPartAttrsMap

Maps linear member part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LinearMemberPartAttrsMap* (on page 150).

CurvedMemberPartAttrsMap

Maps curved member part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *CurvedMemberPartAttrsMap* (on page 151).

InsulationAttrsMap

Maps insulation attributes between Smart 3D and PDMS. For more information, see *InsulationAttrsMap* (on page 151).

SlabAttrsMap

Maps slab attributes between Smart 3D and PDMS. For more information, see *SlabAttrsMap* (on page 151).

StairAttrsMap

Maps stair attributes between Smart 3D and PDMS. For more information, see *StairAttrsMap* (on page 151).

LadderAttrsMap

Maps ladder attributes between Smart 3D and PDMS. For more information, see *LadderAttrsMap* (on page 152).

HandRailAttrsMap

Maps handrail attributes between Smart 3D and PDMS. For more information, see *HandRailAttrsMap* (on page 152).

FootingAttrsMap

Maps footing attributes between Smart 3D and PDMS. For more information, see *FootingAttrsMap* (on page 152).

EquipmentFoundationAttrsMap

Maps equipment foundation attributes between Smart 3D and PDMS. For more information, see *EquipmentFoundationAttrsMap* (on page 152).

LeafPlateSystemAttrsMap

Maps leaf plate system attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LeafPlateSystemAttrsMap* (on page 153).

PlanarPlatePartAttrsMap

Maps planar plate system attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *PlanarPlatePartAttrsMap* (on page 153).

CurvedPlatePartAttrsMap

Maps curved plate part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *CurvedPlatePartAttrsMap* (on page 153).

LeafStiffenerSystemAttrsMap

Maps leaf stiffener system attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LeafStiffenerSystemAttrsMap* (on page 153).

LinearStiffenerPartAttrsMap

Maps linear stiffener part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LinearStiffenerPartAttrsMap* (on page 154).

CurvedStiffenerPartAttrsMap

Maps curved stiffener part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *CurvedStiffenerPartAttrsMap* (on page 154).

LeafERSystemAttrsMap

Maps leaf edge reinforcement system attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LeafERSystemAttrsMap* (on page 154).

LinearERProfilePartAttrsMap

Maps linear edge reinforcement profile part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LinearERProfilePartAttrsMap* (on page 154).

CurvedERProfilePartAttrsMap

Maps curved edge reinforcement profile part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *CurvedERProfilePartAttrsMap* (on page 155).

LeafBeamSystemAttrsMap

Maps leaf beam system attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LeafBeamSystemAttrsMap* (on page 155).

BeamPartAttrsMap

Maps beam part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *BeamPartAttrsMap* (on page 155).

LinearSASTiffenerPartAttrsMap

Maps linear SA stiffener part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *LinearSASTiffenerPartAttrsMap* (on page 155).

CurvedSASTiffenerPartAttrsMap

Maps curved SA stiffener part attributes between Smart 3D and PDMS. This sheet is only applicable when using the software in Marine mode. For more information, see *CurvedSASTiffenerPartAttrsMap* (on page 156).

HoleFittingAttrsMap

Maps hole fitting object attributes between Smart 3D and PDMS. For more information, see *HoleFittingAttrsMap* (on page 156).

StructureGlobalsMap

Defines global settings for structural export. For more information, see *StructureGlobalsMap* (on page 156).

InsulationAttrMap

Defines insulation encasement type design parameters for each cross-section type. For more information, see *InsulationAttrMap* (on page 157).

InsulationSpecAttrMap

Defines insulation encasement type **SpecRef** attributes for each cross-section type. For more information, see *InsulationSpecAttrMap* (on page 157).

StructureMatSpecMap

Defines value mapping of the **MatRef** attribute for each Smart 3D material type. For more information, see *StructureMatSpecMap* (on page 157).

SmartItemMaterialMap

Defines the value mapping of the **MatRef** attribute for each footing and equipment foundation objects and their assemblies. For more information, see *SmartItemMaterialMap* (on page 157).

StructPartNumbersMap

Defines value mapping of the **MatRef** attribute for each structural object part number. For more information, see *StructPartNumbersMap* (on page 158).

StructClassAdditionalAttribute

Maps additional attributes for Smart 3D cross-sections. For more information, see *StructClassAdditionalAttributes* (on page 159).

AISC-LRFD-HSSC, AISC-LRFD-PIPE, AISC-LRFD-L, AISC-LRFD-C, AISC-LRFD-WT, AISC-LRFD-HSSR, AISC-LRFD-W, AISC-LRFD-M, AISC-LRFD-S, AISC-LRFD-ST, AISC-LRFD-HP, AISC-LRFD-MC

Defines value mapping between a Smart 3D cross-section name and the PDMS cross-section **SpecRef** attribute for each specific cross-section type. For more information, see *Cross-Section Maps* (on page 160).

TUBE_PLine, ANG_PLine, DINU_PLine, TEE_PLine, BOX_PLine, BEAM_PLine, SBM_PLine, STEE_PLine

Defines value mapping between Smart 3D cardinal points and the PDMS **PLine** attribute for each specific cross-section type. For more information, see *Cardinal Point Maps* (on page 161).

MarineCSAdditionalAttributes

Maps additional attributes for Smart 3D cross-sections.

ShipShapes-I, ShipShapes-B, ShipShapes-FB, ShipShapes-ISType, ShipShapes-CSType, ShipShapes-H, ShipShapes-T_XType, ShipShapes-TSType, ShipShapes-EA, ShipShapes-RT, ShipShapes-P, ShipShapes-BUT, ShipShapes-C_SS, ShipShapes-UA, ShipShapes-BUTL2, ShipShapes-BUTL3, ShipShapes-HalfR, ShipShapes-R

Defines value mapping between a Smart 3D cross-section name and the PDMS cross-section **SpecRef** attribute for each specific cross-section type. This sheet is only applicable when using the software in Marine mode.

I_PLine, B_PLine, FB_PLine, IStype_PLine, CStype_PLine, H_PLine, T_XType_PLine, TSType_PLine, EA_PLine, RT_PLine, P_PLine, BUT_PLine, C_SS_PLine, UA_PLine, BUTL2_PLine, BUTL3_PLine, HalfR_PLine, R_PLine

Defines value mapping between Smart 3D load points and the PDMS **PLine** attribute for each specific cross-section type.

StructureClassMap

The **StructureClassMap** sheet defines the structure class mapping between Smart 3D and PDMS. The structure classes that are displayed on this sheet are the only ones that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

Source Class Name

Displays the Smart 3D structure class to map.

Target Class Name

Displays the PDMS structure class to which the **Source Class Name** value is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExport.xls** workbook that maps Smart 3D structure class properties to PDMS.

StraightWallAttrsMap

The **StraightWallAttrsMap** sheet maps the user defined attributes of straight walls in Smart 3D.

S3D Attribute

Type the name of the Smart 3D attribute to which PDMS attribute is mapped.

PDMS Attribute

Type the name of the PDMS attribute.

📘 **NOTE** The Smart 3D walls constructed with linear points are exported as straight walls (STWALL) in PDMS.

CurvedWallAttrsMap

The **CurvedWallAttrsMap** sheet maps the user defined attributes of curved walls in Smart 3D.

S3D Attribute

Type the name of the Smart 3D attribute to which PDMS attribute is mapped.

PDMS Attribute

Type the name of the PDMS attribute.

📘 **NOTE** The Smart 3D curved walls are exported as WALL with SPINE in PDMS.

WallSystemAttrsMap

The **WallSystemAttrsMap** sheet maps the user defined properties of wall system in Smart 3D to the relevant PDMS sub framework.

S3D Attribute

Type the name of the Smart 3D attribute to which PDMS attribute is mapped.

PDMS Attribute

Type the name of the PDMS attribute.

CoordinateSystemMap

The **CoordinateSystemMap** sheet maps coordinate system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D coordinate system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

ElevationPlaneMap

The **ElevationPlaneMap** sheet maps elevation plane attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D elevation plane attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

GridLineMap

The **GridLineMap** sheet maps grid line attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D grid line attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LinearMemberPartAttrsMap

The **LinearMemberPartAttrsMap** maps linear member part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D linear member part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CurvedMemberPartAttrsMap

The **CurvedMemberPartAttrsMap** sheet maps curved member part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D curved member part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

InsulationAttrsMap

The **InsulationAttrsMap** sheet maps insulation attributes between Smart 3D and PDMS.

Value

Type the Smart 3D insulation parameter to map.

Attribute Name

Type the name of the PDMS attribute to which the **Value** setting is to be mapped.

Attribute Value

Type the required attribute value.

SlabAttrsMap

The **SlabAttrsMap** sheet maps slab attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D slab attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

StairAttrsMap

The **StairAttrsMap** sheet maps stair attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D stair attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LadderAttrsMap

The **LadderAttrsMap** sheet maps ladder attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D ladder attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

HandRailAttrsMap

The **HandRailAttrsMap** sheet maps handrail attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D handrail attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

FootingsAttrsMap

The **FootingsAttrsMap** sheet maps footing attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D footing attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

EquipmentFoundationAttrsMap

The **EquipmentFoundationAttrsMap** sheet maps equipment foundation attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D equipment foundation attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LeafPlateSystemAttrsMap

The **LeafPlateSystemAttrsMap** sheet maps leaf plate system attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D leaf plate system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

PlanarPlatePartAttrsMap

The **PlanarPlatePartAttrsMap** sheet maps planar plate part attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D planar plate part system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CurvedPlatePartAttrsMap

The **CurvedPlatePartAttrsMap** sheet maps curved plate part attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D curved plate part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LeafStiffenerSystemAttrsMap

The **LeafStiffenerSystemAttrsMap** sheet maps leaf stiffener system attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D leaf stiffener system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LinearStiffenerPartAttrsMap

The **LinearStiffenerPartAttrsMap** sheet maps linear stiffener part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D linear stiffener part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CurvedStiffenerPartAttrsMap

The **CurvedStiffenerPartAttrsMap** sheet maps curved stiffener part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D curved stiffener part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LeafERSystemAttrsMap

The **LeafERSystemPartAttrsMap** sheet maps leaf reinforcement system part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D leaf edge reinforcement system part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LinearERProfilePartAttrsMap

The **LinearERProfilePartAttrsMap** sheet maps linear edge reinforcement profile part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D linear edge reinforcement profile part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CurvedERProfilePartAttrsMap

The **CurvedERProfilePartAttrsMap** sheet maps curved edge reinforcement profile part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D curved edge reinforcement profile part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LeafBeamSystemAttrsMap

The **LeafBeamSystemAttrsMap** sheet maps leaf beam system attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D leaf beam system attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

BeamPartAttrsMap

The **BeamPartAttrsMap** sheet maps beam part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D beam part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

LinearSASTiffenerPartAttrsMap

The **LinearSASTiffenerPartAttrsMap** sheet maps linear SA stiffener part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D linear SA stiffener part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CurvedSASTiffenerPartAttrsMap

The **CurvedSASTiffenerPartAttrsMap** sheet maps curved SA stiffener part attributes between Smart 3D and PDMS.

S3D Attribute

Type the name of the Smart 3D curved SA stiffener part attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

HoleFittingAttrsMap

The **HoleFittingAttrsMap** sheet maps hole fitting object attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D hole fitting attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

StructureGlobalsMap

The **StructureGlobalsMap** sheet defines value mapping between Smart 3D attributes (**Insulation**, **InsulationSpecRef**, **S3DMaterial**, **SmartItemMaterial**, **CrossSection**, **PartNumber**, and **Wall Composition**) and PDMS.

★ **IMPORTANT** The values contained on this sheet define the global settings for structure model export and should **not** be modified.

S3D Attribute

Displays the name of the Smart 3D attribute to map.

PDMS Attribute

Displays the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

InsulationAttrMap

The **InsulationAttrMap** sheet defines insulation encasement type design parameters for each cross-section type.

Value

Type the Smart 3D insulation encasement type design parameter to map.

Attribute Name

Type the name of the PDMS attribute to which the **Value** setting is to be mapped.

Attribute Value

Type the PDMS attribute value.

InsulationSpecAttrMap

The **InsulationSpecAttrMap** sheet defines insulation encasement type **SpecRef** attributes for each cross-section type.

Value

Type the Smart 3D insulation encasement type design parameter to map.

Attribute Name

Type the name of the PDMS attribute to which the **Value** setting is to be mapped.

Attribute Value

Type the PDMS attribute value.

StructureMatSpecMap

The **StructureMatSpecMap** sheet defines the value mapping of the **MatRef** attribute for each Smart 3D material type.

S3D Value

Type the value of the Smart 3D **MatRef** attribute to map.

PDMS Value

Type the value of the PDMS attribute to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

SmartItemMaterialMap

Then **SmartItemMaterialMap** sheet defines mapping between Smart 3D footing and equipment foundation objects and their assemblies and PDMS **MatRef** attributes.

Value

Type the Smart 3D footing, equipment foundation, or assembly object to map.

Attribute Name

Type the appropriate PDMS **MatRef** attribute to which the **Value** setting is to be mapped.

Attribute Value

Type the required attribute value.

StructPartNumbersMap

The **StructPartNumbersMap** sheet maps Smart 3D structural object part numbers to the appropriate PDMS **MatRef** attribute.

Value

Type the Smart 3D structural object part number to map.

PDMS Attribute

Type the PDMS **MatRef** attribute value.

Attribute Value

Type the required **MatRef** attribute value.

PDMSWallAdditionalAttributes

The **PDMSWallAdditionalAttributes** sheet maps **SpecReference (SPRE)**, **Material Reference (MATR)**, and **Cardinal Points (JUSL)** of the Smart 3D wall compositions to the relevant PDMS values.

Value

Type the Smart 3D wall composition attribute to map.

Attribute Name

Type the name of the PDMS attribute to which **Value** is mapped.

Attribute Value

Type the required value for the PDMS attribute.

WallCrossSectionMap

The **WallCrossSectionMap** sheet defines mapping between Smart 3D wall composition and PDMS SpecRef.

S3D Value

Type the value of the Smart 3D wall composition attribute to map.

PDMS Value

Type the value of the PDMS SpecRef attribute to which **S3D Value** is mapped.

WallCSAdditionalAttributesMap

The **WallCSAdditionalAttributesMap** sheet maps PDMS design parameters (wall thickness and wall height) to the relevant Smart 3D attributes.

Value

Type the SpecRef attribute value of PDMS wall.

Attribute Name

Type the appropriate PDMS attribute name to which **Value** is mapped.

Attribute Value

Type the required PDMS wall attribute value.

Wall_JUSL

The **Wall_JUSL** sheet maps Smart 3D cardinal points to the relevant PDMS justification lines.

S3D Value

Type the value of the Smart 3D wall cardinal points to map.

PDMS Value

Type the value of the PDMS wall justification line value to which **S3D Value** is mapped.

StructClassAdditionalAttributes

The **StructClassAdditionalAttributes** sheet maps additional attributes between Smart 3D cross-sections and PDMS.

NOTE For more information, see *Map cross-section and orientation mismatches* (on page 91).

Value

Type the Smart 3D cross-section attribute to map.

Attribute Name

Type the name of the PDMS attribute to which the **Value** setting is to be mapped. The attributes **GType**, **spre**, and **PLine** are required.

Attribute Value

Type the required values for each of the PDMS attributes.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

Cross-Section Maps

The sheets listed in the following table define value mapping between the Smart 3D cross-section name and the PDMS cross-section **SpecRef** attribute for that specific cross-section type.

NOTE Each sheet name is identified by a unique string constructed by appending the cross-section standard with the cross-section type separated by a dash (-).

- | | |
|-------------------------|-----------------------|
| ▪ AISC-LRFD-HSSC | ▪ AISC-LRFD-W |
| ▪ AISC-LRFD-PIPE | ▪ AISC-LRFD-M |
| ▪ AISC-LRFD-L | ▪ AISC-LRFD-S |
| ▪ AISC-LRFD-C | ▪ AISC-LRFD-ST |
| ▪ AISC-LRFD-WT | ▪ AISC-LRFD-HP |
| ▪ AISC-LRFD-HSSR | ▪ AISC-LRFD-MC |

S3D Value

Type the name of the Smart 3D cross-section to map.

PDMS Value


Type the PDMS cross-section **SpecRef** attribute to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

Cardinal Point Maps

The sheets listed in the following table define value mapping between Smart 3D cardinal points and the PDMS **PLine** attribute for a specific cross-section type.

 **NOTE** Each sheet name is identified by a unique string constructed by appending the GType value of that cross-section type with the string **PLine** separated by an underscore (_).

TUBE_PLine	BOX_PLine
ANG_PLine	BEAM_PLine
DINU_PLine	SBM_PLine
TEE_PLine	STEE_PLine

S3D Value

Type the value of the Smart 3D cardinal point to map.

PDMS Value

Type the value of the PDMS **PLine** attribute to which the **S3D Value** setting is to be mapped.

Remarks

Provides additional comments from Intergraph on default delivered mapping.

Marine Cross-Section Maps

The sheets listed in the following table define value mapping between the Smart 3D cross-section name and the PDMS cross-section **SpecRef** attribute for that specific cross-section type.

NOTE Each sheet name is identified by a unique string constructed by appending the cross-section standard with the cross-section type separated by a dash (-).

ShipShapes-I	ShipShapes-B	ShipShapes-FB
ShipShapes-ISType	ShipShapes-CSType	ShipShapes-H
ShipShapes-T_XType	ShipShapes-TSType	ShipShapes-EA
ShipShapes-RT	ShipShapes-P	ShipShapes-BUT
ShipShapes-C_SS	ShipShapes-UA	ShipShapes-BUTL2
ShipShapes-BUTL3	ShipShapes-HalfR	ShipShapes-R

S3D Value

Type the name of the Smart 3D cross-section to map.

PDMS Value

Type the PDMS cross-section **SpecRef** attribute to which the Smart 3D cross-section is to be mapped.

Load Point Maps

The sheets listed in the following table define value mapping between Smart 3D load/key points and the PDMS **PLine** attribute for a specific cross-section type.

NOTE Each sheet name is identified by a unique string constructed by appending the GType value of that cross-section type with the string **PLine** separated by an underscore (_).

I_PLine	B_PLine	FB_PLine
ISType_PLine	CSType_PLine	H_PLine
T_XType_PLine	TSType_PLine	EA_PLine
RT_PLine	P_PLine	BUT_PLine
C_SS_PLine	UA_PLine	BUTL2_PLine
BUTL3_PLine	HalfR_PLine	R_PLine

S3D Value

Type the name of the Smart 3D load point/key point to map.

PDMS Value

Type the PDMS **PLine** attribute to which the specified Smart 3D load point/key point is to be mapped.

Supports Translation Maps

Use the supports translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D support properties to the correct PDMS support attributes. Before exporting Smart 3D supports model data to PDMS, you must modify these sheets to ensure that the following criteria have been met:

- All of the support components in the Smart 3D model are mapped to corresponding HANGER elements in PDMS.

The following Supports translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

SupportsClassMap

Maps the supported Supports classes between Smart 3D and PDMS. This is the main mapping sheet for the Supports discipline. For more information, see *SupportsClassMap* (on page 165).

CHgrPipeSupport

Maps piping supports attributes between Smart 3D and PDMS. For more information, see *CHgrPipeSupport* (on page 165).

CHgrDuctSupport

Maps duct supports attributes between Smart 3D and PDMS. For more information, see *CHgrDuctSupport* (on page 165).

CHgrCableTraySupport

Maps cable tray supports attributes between Smart 3D and PDMS. For more information, see *CHgrCableTraySupport* (on page 165).

CHgrDesignSupport

Maps design supports attributes between Smart 3D and PDMS. For more information, see *CHgrDesignSupport* (on page 166).

CHgrSupportComponent

Maps support component attributes between Smart 3D and PDMS. For more information, see *CHgrSupportComponent* (on page 166).

HgrSupportGlobals

Defines global settings for hangers and support export. For more information, see *HgrSupportGlobals* (on page 166).

SupportPartNumber

Defines PDMS **SpecRef** attributes for each type of support component. For more information, see *SupportPartNumber* (on page 166).

SupportGTYPE

Defines PDMS GTypes for each type of Smart 3D support component. For more information, see *SupportGTYPE* (on page 167).

SupportUserAttributes

Defines PDMS attributes and PDMS design parameters for each type of support component. For more information, see *SupportUserAttributes* (on page 167).

SupportsClassMap

The **SupportsClassMap** sheet defines the Support class mapping between Smart 3D and PDMS. The Support classes that are displayed on the **SupportsClassMap** sheet are the only ones that are currently supported for export to PDMS. Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D Support class to map.

PDMS Class Name

Displays the PDMS Support class to which the **S3D Class Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExportMapping.xls** workbook that maps Smart 3D Support class attributes to PDMS.

CHgrPipeSupport

The **CHgrPipeSupport** sheet maps pipe support attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D pipe support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CHgrDuctSupport

The **CHgrDuctSupport** sheet maps duct support attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D duct support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CHgrCableTraySupport

The **CHgrCableTraySupport** sheet maps cable tray support attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D cable tray support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CHgrDesignSupport

The **CHgrDesignSupport** sheet maps design support attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D design support attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

CHgrSupportComponent

The **CHgrSupportComponent** sheet maps support component attributes between Smart 3D and PDMS.

S3D Attribute

Type the Smart 3D support component attribute to map.

PDMS Attribute

Type the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

HgrSupportGlobals

The **HgrSupportGlobals** sheet displays mapping between Smart 3D **S3DPartNumber**, **S3DPartNumber_GTYPE**, **S3DPartNumber_UA**, and PDMS elements. The first two properties cross-reference their respective value mapping sheets and the third property in this sheet cross-references its respective attribute mapping sheet.

★ **IMPORTANT** The values contained on this sheet define the global settings for Hangers and Supports model export and should not be modified.

S3D Attribute

Displays the name of the Smart 3D property to map.

PDMS Attribute

Displays the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

SupportPartNumber

The **SupportPartNumber** sheet maps part numbers of support components to the PDMS **SpecRef** attribute of PDMS HANGER elements.

S3D Value

Type the part number of the Smart 3D support component to map.

PDMS Value

Type the **SpecRef** attribute of the PDMS HANGER element to which the **S3D Value** setting is to be mapped.

SupportGTYPE

The **SupportGTYPE** sheet maps part numbers of support components to the GTYPE of PDMS HANGER elements.

S3D Value - Type the part number of the Smart 3D support component to map.

PDMS Value - Type the GTYPE of the PDMS HANGER element to which the **S3D Value** setting is to be mapped.

SupportUserAttributes

The **SupportUserAttributes** sheet maps additional properties for Smart 3D support component part numbers.

Value - Type the Smart 3D support component part number to map.

Attribute Name - Type the PDMS attribute which is created as an additional attribute for **Value**.

Attribute Value - Type the required attribute value.

Units Translation Maps

Use the units translation mapping sheets in the **S3DPDMSExportMapping.xls** workbook to map Smart 3D systems of units to the correct PDMS units attributes. Before exporting Smart 3D units data to PDMS, you must modify these sheets to ensure that all of the system of units in the Smart 3D model are mapped to corresponding system of units in PDMS.

★ **IMPORTANT** After all of the mapping is completed in the **S3DPDMSExportMapping.xls** workbook, run the **PDMS Export Validation** command to validate the mapping data in the workbook. Any missing entries reported by the validation tool should be resolved. For more information, see PDMS Export Validation.

The following unit translation maps are delivered in the **S3DPDMSExportMapping.xls** workbook:

UnitsClassMap

Defines the system of units mapping between Smart 3D and PDMS. The unit systems that are displayed on this sheet are the only ones that are currently supported for export to PDMS. For more information, see *UnitsClassMap* (on page 168).

UnitsGlobalsMap

Displays mapping between Smart 3D system of units and PDMS system of units. For more information, see *UnitsGlobalsMap* (on page 168).

UnitsAdditionalAttributeMap

Maps Smart 3D measuring parameters and their units to those on PDMS. For more information, see *UnitsAdditionalAttributeMap* (on page 169).

UnitsClassMap

The **UnitsClassMap** sheet defines the system of units mapping between Smart 3D and PDMS. The unit systems that are displayed on this sheet are the only ones that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D units class to map.

PDMS Class Name

Displays the PDMS units class to which the **S3D Class Name** setting is to be mapped.

Attributes Sheet

Displays the sheet name in the **S3DPDMSExport.xls** workbook that maps Smart 3D units class properties to PDMS.

UnitsGlobalsMap

The **UnitsGlobalsMap** sheet displays mapping between Smart 3D system of units and PDMS system of units. The values contained on this sheet define the global settings for piping model export and should not be modified.

S3D Attribute

Displays the name of the Smart 3D attribute to map.

PDMS Attribute

Displays the name of the PDMS attribute to which the **S3D Attribute** setting is to be mapped.

UnitsAdditionalAttributeMap

The **UnitsAdditionalAttributeMap** sheet maps Smart 3D measuring parameters and their units to those on PDMS.

S3D Value

Do not modify this entry.

PDMS Attribute

Do not modify this entry.

Attribute Value

You can change these values so that PDMS can accept these strings but there are some limitations.

★ **IMPORTANT**

- You can change the way a unit is written to the DATAL file but should not change it into its derived forms. For example, if distance is written in millimeters, the mapping sheet can be modified to write MM, mm, or Millimeter but not centimeter or kilometer.
- You cannot add new measuring parameters to the sheet.

APPENDIX B

Appendix: PDMS Import to Smart 3D Workbook

The **File > Import > PDMS Data Import > Import Model** command uses the Microsoft Excel workbook PDMSS3DImportMapping.xls to map all of the PDMS objects and object properties to the corresponding objects in Smart 3D. By default, the workbook is delivered in the *[Product Folder]\3DRefData\SharedContent\Data\Translators\PDMS3DImport* folder during setup.

The PDMSS3DImportMapping.xls workbook consists of all of the required types of translation mapping worksheets. Before you import PDMS model data, modify these mapping worksheets to ensure that they meet all of the necessary criteria. Refer to comments in the delivered mapping file sheets for more information on configuring the mapping files.

- *Equipment Translation Maps* (on page 173)
- *Piping Translation Maps* (on page 179)
- *Structure Translation Maps* (on page 184)
- *HVAC Translation Maps* (on page 202)
- *Hangers and Supports Translation Maps* (on page 207)
- *Hierarchy Translation Maps* (on page 210)
- *Electrical Translation Maps* (on page 213)

Common Mapping Attribute Settings

When modifying the translation mapping worksheets, some of the data columns are specific to that individual worksheet. Other data columns are common amongst many mapping worksheets. When you modify a mapping worksheet, you may see any, or all, of the data columns listed below.

MapType

Indicates the map type of the attribute. Acceptable values are:

- **NameDef** specifies that the value needs to be directly transferred. For example, an attribute named **Name** exists in the source system and an identical attribute named **Name** exists in the target system. Because both attributes have the same meaning, the value only needs to be transferred between the two systems. By default, if no **MapType** is specified, **NameDef** is used.
- **ValueDef** specifies that the value of an attribute must be mapped before it is transferred.
- **AdditionalAttributeDef** specifies that you must create new or additional attributes for the value of a given attribute.
- **PatternDef** specifies that the creation of a new value for an attribute is to be based on a specific pattern.
 - *n* - Variable number of digits in a numeric field.
 - *?* - Wild card. Matches any single printable character.
 - *** - Wild token. Matches any number of printable characters.
 - *[]* - Literal character match. Matches the character that appears within the brackets. For example, **[N]** matches the upper case character, **N**.
 - *~* - Reverse pattern match. For example, **AA-NNN~** matches AA-NNN or NNN-AA.
- **CharacterDef** - Splits the value of an attribute using a delimiter or character position and string length to generate new attributes.

SheetName

Identifies the name of the sheet in the PDMSS3DImportMapping.xls workbook that contains additional mapping information related to the attribute, if any exists.

Formula

Defines the formula Smart 3D uses to calculate the value of the attribute to map, if one is needed. For example, if the source system has an attribute **Radius** that needs to be mapped to the destination system's attribute **Diameter**, the software cannot substitute one value for the other. Instead the value used for **Diameter** would result from the following calculation: *Diameter = 2 * Radius*.

Value

Defines the value to set for the Smart 3D attribute, or defines the PDMS value that needs additional mapping.

Label

Specifies whether the Smart 3D attribute is a label. Type **TRUE/YES** or **FALSE/NO**. Entries can be in lowercase or uppercase. For more information, see *Export equipment attributes using labels* (on page 89).

Ignore

Specifies whether the item is ignored during import. Type **TRUE/YES** or **FALSE/NO**. Entries can be in lowercase or uppercase.

Remarks

Specifies any additional information regarding the data being mapped.

See Also

Define matching reference data (on page 69)

Equipment Translation Maps

Use the equipment translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map PDMS equipment attributes to the correct Smart 3D equipment properties. Before importing PDMS equipment model data to Smart 3D, modify these mapping sheets to ensure that the following criteria are met:

- All catalog equipment objects in the PDMS model are mapped to corresponding equipment objects in Smart 3D.
- All primitives in PDMS are mapped to the corresponding shapes in the Smart 3D model.
- All nozzles in PDMS are mapped to the corresponding pipe nozzles in Smart 3D. This is mandatory to import nozzles into Smart 3D regardless of the options that are defined in the PDMSS3DImportTranslator.ini file.

★ **IMPORTANT** After you complete all of the mapping in the PDMSS3DImportMapping.xls workbook, run **PDMS Import Validation** to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see *PDMS Import Validation* (on page 72).

The PDMSS3DImportMapping.xls workbook delivers the following equipment translation maps:

AspectMap

Maps PDMS level (**LEVE**) and obstruction (**OBST**) values to the Smart 3D aspect codelist values in the **AllCodeLists.xls** workbook. For more information, see *AspectMap* (on page 174).

CPEquipmentComptMap

Maps PDMS SUBEQUIPMENT attributes to Smart 3D CPEquipmentComponent class properties. For more information, see *CPEquipmentComptMap* (on page 175).

CPPipeNozzleMap

Maps PDMS nozzle attributes to Smart 3D CPPipeNozzle class properties. For more information, see *CPPipeNozzleMap* (on page 175).

CPShapeAdditionalAttributes

Maps additional attributes, such as dimensional data and adjustment rotation matrix that are set for the shapes with the corresponding Smart 3D **PartNumber**. For more information, see *CPShapeAdditionalAttributes* (on page 175).

CPShapeMap

Maps PDMS primitive attributes and the equivalent Smart 3D CPShape class properties. For more information, see *CPShapeMap* (on page 176).

CPShapeValueMap

Maps each PDMS primitive to its equivalent Smart 3D shape **PartNumber**. For more information, see *CPShapeValueMap* (on page 176).

CPSmartEquipmentMap

Maps PDMS EQUIPMENT attributes to Smart 3D CPSmartEquipment class properties. For more information, see *CPSmartEquipmentMap* (on page 176).

EqGlobalsMap


Defines the mapping between **PartNumber**, **ShapePartNumber**, **AspectCode**, and **S3DNozzleOrientation**. For more information, see *EqGlobalsMap* (on page 177).

EquipmentClassMap

Maps the supported equipment classes between PDMS and Smart 3D. This is the main mapping sheet for the equipment discipline. This sheet contains different class map sheets for CPSEquipment, CPEquipmentComponent, CPShape, and CPPipeNozzle. This sheet also contains a global sheet, which includes additional mapping information. For more information, see *EquipmentClassMap* (on page 177).

NozzleAdditionalAttrMap

Provides additional attribute mapping that is required to map PDMS nozzles to Smart 3D CPPipeNozzle. You can add the mapping for PDMS nozzles. The **CATRef** attribute of a PDMS nozzle is mapped to different Smart 3D attributes, such as **PartNumber**, **Units**, and dimensional data such as **NPD**. For more information, see *NozzleAdditionalAttrMap* (on page 177).

 **NOTE** You can also provide mapping for additional attributes such as **PrimaryDirection** and **SecondaryDirection** of the nozzle.

NozzleOrientationAttrMap

Contains the mapping for nozzle orientation, such as **PrimaryDirection** and **SecondaryDirection**. These attributes are obtained from the nozzle flow direction and normal direction in the PDMS catalog. For more information, see *NozzleOrientationAttrMap* (on page 178).

PartNumberAdditionalAttributes

Contains additional attributes required to import equipment and equipment component dimensional data, such as **Diameter** and **Length**. For more information, see *PartNumberAdditionalAttributes* (on page 178).

PartNumberValueMap

Maps PDMS equipment **CatRef** to Smart 3D equipment **PartNumber**. For more information, see *PartNumberValueMap* (on page 178).

AspectMap

The **AspectMap** sheet maps the **LEVE** and **OBST** values to the Smart 3D aspect codelist values in the AllCodeLists.xls workbook.

PDMS Value

Type the PDMS level (**LEVE**) and obstruction (**OBST**) values to map in the LEVE-OBST format.

S3D Value

Type the Smart 3D codelist value to which **PDMS Value** is mapped.

★ IMPORTANT

- If no LEVE or OBST value is defined in the DATAL file, then **0 10** is used as the default **LEVE** value and **2** is used as the default **OBST** value. You must map these default values **LEVE-OBST** to the Smart 3D aspect values. For example, map 0 10-2 to the Smart 3D aspect in the sheet.
- If you do not map the **LEVE-OBST** values specified in DATAL file to AspectMap sheet, then the default mapped aspect is used.

CPEquipmentComptMap

The **CPEquipmentComptMap** sheet maps equipment component attributes between Smart 3D and PDMS.

PDMS Attribute

Type the name of the PDMS equipment component property to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

CPPipeNozzleMap

The **CPPipeNozzleMap** sheet maps pipe elbow nozzle attributes between Smart 3D and PDMS.

PDMS Attribute

Type the name of the PDMS shape property to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

CPShapeAdditionalAttributes

The **CPShapeAdditionalAttributes** sheet maps additional attributes, such as dimensional data and adjustment rotation matrix, that are set for the shapes with the corresponding Smart 3D **PartNumber**.

S3D Value

Type the Smart 3D shape type.

Attribute Name

Type the name of the Smart 3D attribute to which **S3D Value** is mapped.

Attribute Value

Type the required value for the attribute.

CPShapeMap

The **CPShapeMap** sheet contains the attribute mapping between the PDMS primitive and the equivalent Smart 3D shape.

PDMS Attribute

Type the name of the PDMS shape property to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

CPShapeValueMap

The **CPShapeValueMap** sheet maps each PDMS primitive to its equivalent Smart 3D shape **PartNumber**.

PDMS Value

Type the PDMS primitive name to map.

S3D Value

Type the Smart 3D shape part class to which **PDMS Value** is mapped.

CPSmartEquipmentMap

The **CPSmartEquipmentMap** sheet maps equipment attributes between PDMS and Smart 3D.

PDMS Attribute

Type the name of the PDMS attribute to map.

S3D Attribute

Type the name of the Smart 3D equipment property to which **PDMS Attribute** is mapped.

EqpGlobalsMap

The **EqpGlobalsMap** sheet displays mapping between Smart 3D **PartNumber**, **ShapePartNumber**, **AspectCode**, and **S3DNozzleOrientation** and PDMS.

★ **IMPORTANT** The values contained on this sheet define the global settings for equipment model import. Do not modify these values.

PDMS Attribute

Displays the name of the PDMS attribute to map.

S3D Attribute

Displays the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

EquipmentClassMap

The **EquipmentClassMap** sheet displays the equipment class mapping between Smart 3D and PDMS. The equipment classes that are displayed on this sheet are the only equipment classes that are currently supported for import to Smart 3D.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D equipment class to map.

PDMS Class Name

Displays the PDMS equipment class to which **Smart 3D Class Name** is mapped.

Attributes Sheet

Displays the sheet name in the PDMSS3DImport.xls workbook that maps the PDMS equipment class properties to Smart 3D.

NozzleAdditionalAttrMap

The **NozzleAdditionalAttributes** sheet maps PDMS nozzle parameters to Smart 3D attributes.

PDMS Value

Type the PDMS nozzle parameter to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Value** is mapped.

Attribute Value

Type the required attribute value.

NozzleOrientationAttrMap

The **NozzleOrientationAttrMap** sheet maps nozzle orientations.

S3D Value

Type the Smart 3D nozzle orientation to map.

S3D Attribute

Type the Smart 3D attribute to which **S3D Value** is mapped.

Attribute Value

Type the required attribute value.

PartNumberAdditionalAttributes

The **PartNumberAdditionalAttributes** sheet maps additional attributes for <Product> part numbers. Each additional attribute cross-references to its additional attribute sheet containing design parameters.

S3D Value

Type the Smart 3D part number to map.

S3D Attribute

Type the Smart 3D attribute to which **S3D Value** is mapped.

Attribute Value

Type the required attribute value.

PartNumberValueMap

The **PartNumberValueMap** sheet maps PDMS part numbers to Smart 3D.

PDMS Value

Type the PDMS part number to map.

S3D Value

Type the Smart 3D part number to which **PDMS Value** is mapped.

Piping Translation Maps

Use the piping translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map PDMS piping to relevant Smart 3D piping properties. Before importing PDMS piping model data to Smart 3D, modify these sheets to ensure that the following criteria are met:

- All PDMS specifications in the PDMS DATAL file are mapped to corresponding Smart 3D specifications.
- All components in the PDMS model are mapped to corresponding components in Smart 3D.
- All PCOMPs and INSTs in PDMS are mapped to corresponding Smart 3D piping specialties and instruments.
- All PDMS gaskets are mapped to corresponding gaskets in the Smart 3D catalog.

★ **IMPORTANT** After you complete all of the mapping in the PDMSS3DImportMapping.xls workbook, run **PDMS Import Validation** to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see *PDMS Import Validation* (on page 72).

The PDMSS3DImportMapping.xls workbook delivers the following structure translation maps:

PipingGlobalsMap

Defines the global settings for importing PDMS ATT and DATAL files for the Piping discipline. For more information, see *PipingGlobalsMap* (on page 180).

ComponentOrientationAttrMap

Provides options for mapping the primary direction (flow direction) and the secondary direction (normal direction) of the PDMS component in the PDMS catalog. For more information, see *ComponentOrientationAttrMap* (on page 181).

CPMPipeRunMap

Maps PDMS BRANCH attributes, such as **HBORE** and **PSPEC**, to relevant Smart 3D pipe run class properties. For more information, see *CPMPipeRunMap* (on page 181).

CPPipelineSystemMap

Maps PDMS PIPE attributes to Smart 3D pipeline system properties. For more information, see *CPPipelineSystemMap* (on page 181).

PipingClassMap

Maps the supported piping classes between PDMS and Smart 3D. This is the main mapping sheet for the piping discipline. This sheet contains class mapping sheets for pipeline systems, pipe runs, pipe components, pipe instruments, and pipe supports. This mapping sheet also contains a global sheet that provides additional mapping information. For more information, see *PipingClassMap* (on page 182).

PipeRunSpecMap

Maps PDMS piping specifications with the relevant Smart 3D specification. For more information, see *PipeRunSpecMap* (on page 182).

PipeComponentAttrsMap

Maps PDMS piping component attributes, such as **RADI**, to relevant Smart 3D piping component properties, such as **BendRadius**, or to UserAttributes.<Property>. For more information, see *PipeComponentAttrsMap* (on page 181).

PipeInstrumentAttrsMap

Maps PDMS piping instrument attributes to relevant Smart 3D piping instrument properties or to UserAttributes.<Property>. For more information, see *PipeInstrumentAttrsMap* (on page 182).

PipeSupportAttrsMap

Maps PDMS piping support attributes to relevant Smart 3D piping support properties or to UserAttributes.<Property>. For more information, see *PipeSupportAttrsMap* (on page 182).

RunChangeComponentsMap

Provides options for mapping PDMS piping RunChange components, such as reducers and tees into Smart 3D. Use this mapping sheet to map the PDMS SPRE to the NPD values for each PDMS component port in ascending order. For example, map the NPD value for **Port1**, and then map the NPD value for **Port2**, and so forth. For more information, see *RunChangeComponentsMap* (on page 183).

ShortCodeAdditionalAttributes

Maps PDMS piping component and instrument short codes to relevant Smart 3D component properties, such as **GeometryType**, **TreatItemCodeAsTag**, **IsRotationApplicable**, and **IsSpecificallyPlaced**, and its corresponding short code value. For more information, see *ShortCodeAdditionalAttributes*.

S3DXMLPartTypeMap

Maps PDMS piping GTypes, such as **VALVE**, **FLANGE**, **ELBOW**, and **INST**, that are present in the DATAL or ATT file to relevant Smart 3D piping components or instruments. For more information, see *S3DXMLPartTypeMap* (on page 184).

SPREFS3DIdentifierPatternMap

Maps PDMS piping component or instrument SPREs to relevant Smart 3D piping short codes, such as Flange or Concentric Size Change. For more information, see *SPREFS3DIdentifierPatternMap* (on page 183).

SPREFS3DOptionCodePatternMap

Maps the PDMS component SPRE to the relevant Smart 3D option code. For more information, see *SPREFS3DOptionCodePatternMap* (on page 183).

PDMSS3DFileConstants

Defines the PDMS constants that are present in the PDMS piping .att file to relevant Smart 3D values. These Smart 3D constants are used in the code. For more information, see *PDMSS3DFileConstants* (on page 184).

PipingGlobalsMap

The **PipingGlobalsMap** sheet defines the global settings for importing a PDMS .data1 or .att file. The values contained on this sheet define the global settings for piping model data import. Do not modify these values.

PDMS Attribute

Displays the name of the PDMS attribute to map.

S3D Attribute

Displays the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

ComponentOrientationAttrMap

The **ComponentOrientationAttrMap** sheet provides options for mapping the primary direction (flow direction) and the secondary direction (normal direction) of the PDMS component in the PDMS catalog.

CPMPipeRunMap

The **CPMPipeRunMap** sheet maps PDMS BRANCH attributes, such as **HBORE** and **PSPEC**, to relevant Smart 3D pipe run class properties.

PDMS Attribute

Type the PDMS BRANCH attribute to map.

S3D Attribute

Type the name of the Smart 3D pipe run class property to which **PDMS Attribute** is mapped.

CPPipelineSystemMap

The **CPPipelineSystemMap** sheet maps PDMS PIPE attributes to Smart 3D pipeline system properties.

PDMS Attribute

Type the name of the PDMS PIPE attribute to map.

S3D Attribute

Type the name of the Smart 3D pipeline system attribute to which **PDMS Attribute** is mapped.

PipeComponentAttrsMap

The **PipeComponentAttrsMap** sheet maps PDMS piping component attributes to relevant Smart 3D piping component properties.

PDMS Attribute

Type the PDMS piping component attribute to map.

S3D Attribute

Type the name of the Smart 3D piping component property to which **PDMS Attribute** is mapped.

PipeInstrumentAttrsMap

The **PipeInstrumentAttrsMap** sheet maps PDMS piping instrument attributes to relevant Smart 3D piping instrument properties

PDMS Attribute

Type the PDMS pipe instrument attribute to map.

S3D Attribute

Type the name of the Smart 3D piping instrument property to which **PDMS Attribute** is mapped.

PipeRunSpecMap

The **PipeRunSpecMap** sheet maps PDMS piping specifications with the relevant Smart 3D specification.

PDMS Value

Type the name of the PDMS piping specification to map.

S3D Value

Type the name of the Smart 3D specification to which **PDMS Value** is mapped.

PipeSupportAttrsMap

The **PipeSupportAttrsMap** sheet maps PDMS piping support attributes to relevant Smart 3D piping support properties.

PDMS Attribute

Type the PDMS pipe support attribute to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

PipingClassMap

The **PipingClassMap** sheet defines the piping class mapping between PDMS and Smart 3D. The piping classes that display on the **PipingClassMap** sheet are the only piping classes that are currently supported for import to Smart 3D.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D piping class to which **PDMS Class Name** is mapped.

PDMS Class Name

Displays the PDMS piping class to map.

Attributes Sheet

Displays the sheet name in the PDMSS3DImport.xls workbook that maps piping class properties between PDMS and Smart 3D.

RunChangeComponentsMap

The **RunChangeComponentsMap** sheet provides options for mapping PDMS piping run change components, such as reducers and tees, into Smart 3D. Use this mapping sheet to map the PDMS SPRE to the NPD values for each PDMS component port in ascending order. For example, map the NPD value (NPD1) for **Port1**, and then map the NPD value (NPD2) for **Port2**, and so forth.

SPREFS3DIdentifierPatternMap

The **SPREFS3DIdentifierPatternMap** sheet maps PDMS piping component or instrument SPREs to relevant Smart 3D piping short codes.

PDMS Value

Type the PDMS piping component or instrument SPRE to map.

S3D Value

Type the Smart 3D piping short code to which Smart 3D is mapped.

SPREFS3DOptionCodePatternMap

The **SPREFS3DOptionCodePatternMap** sheet maps the PDMS component SPRE to the relevant Smart 3D option code.

PDMS Value

Type the PDMS component SPRE to map.

S3D Value

Type the Smart 3D option code to which **PDMS Value** is mapped.

S3DXMLPartTypeMap

The **S3DXMLPartTypeMap** sheet maps PDMS piping GTypes that are present in the DATAL or .att file to relevant Smart 3D piping components or instruments.

PDMS Value


Type the PDMS piping GType to map.

S3D Value

Type the name of the Smart 3D piping component or instrument to which **PDMS Value** is mapped.

PDMSS3DFileConstants

The **PDMSS3DFileConstants** sheet defines the PDMS constants that are present in the PDMS piping and HVAC .att file to relevant Smart 3D values. The values contained on this sheet define the Smart 3D constants that are used in the code. Do not modify these values.

 **NOTE** If there are any changes, you can define additional constants in the **PDMS Attribute Name** column.

Value

Displays the name of the Smart 3D constant to which **PDMS Attribute Name** is mapped.

PDMS Attribute Name

Displays the constant present in the PDMS piping or HVAC .att file to map.

Structure Translation Maps

Use the structure translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map PDMS structure attributes to the correct Smart 3D structure properties. Before importing PDMS structure model data to Smart 3D, modify these sheets to ensure that the following criteria are met:

- All cross-sections and **PLine** attributes in the PDMS catalog are mapped to the corresponding cross-sections and cardinal points in the Smart 3D model. This is mandatory for the import of members to Smart 3D.

★ **IMPORTANT** After you complete all of the mapping in the PDMSS3DImportMapping.xls workbook, run **PDMS Import Validation** to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see *PDMS Import Validation* (on page 72).

📘 **NOTE** You can define the **Default** value in each sheet as the PDMS **PLine** attribute, mapped to the Smart 3D cardinal point. The software uses the **Default** value only if **JUSL** is not defined for the section or is not mapped in the mapping file. If you do not map the **Default** value to a cardinal point, the software defines the cardinal point as **5-Center**.

The PDMSS3DImportMapping.xls workbook delivers the following structure translation maps:

BUBoxFM_PLine

Provides mapping between the PDMS BUBoxFM cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *BUBoxFM_PLine* (on page 189).

BUC_PLine

Provides mapping between the PDMS BUC cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *BUC_PLine* (on page 190).

BUCone_PLine

Provides mapping between the PDMS BUCone cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *BUCone_PLine* (on page 190).

BUI_PLine

Provides mapping between the PDMS BUI cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *BUI_PLine* (on page 190).

BuiltUpCrossSecAdditionalAtt

Provides mapping between PDMS cross-sections with design parameters and Smart 3D standard cross-sections. Smart 3D **ReferenceStandard** and **CrossSection** attribute values are obtained from corresponding cross sections in Smart 3D catalog. For more information, see *BuiltUpCrossSecAdditionalAtt* (on page 190).

BuiltupDesignParametersMap

Provides additional attributes, such as dimensional data, that Smart 3D sets on interfaces. Dimensional data is obtained from the corresponding cross-section design parameters in the PDMS DATAL file. For more information, see *BuiltupDesignParametersMap* (on page 191).

BUL_PLine

Provides mapping between the PDMS BUL cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *BUL_PLine* (on page 191).

BUTee_PLine

Provides mapping between PDMS BUTee cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *BUTee_PLine* (on page 191).

BUTube_PLine

Provides mapping between the PDMS BUTube cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *BUTube_PLine* (on page 191).

C_PLine

Provides mapping between the PDMS C cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *C_PLine* (on page 192).

CoordinateSysAttrMap

Maps PDMS DATUM attributes to Smart 3D SPGCoordinateSystem class properties. For more information, see *CoordinateSysAttrMap* (on page 192).

FootingRefMap

Provides mapping between the PDMS footing reference SPRE and the Smart 3D footing part number. For more information, see *FootingRefMap* (on page 192).

HSSC_PLine

Provides mapping between the PDMS HSSC cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *HSSC_PLine* (on page 192).

HP_PLine

Provides mapping between the PDMS HP cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *HP_PLine* (on page 192).

HSSR_PLine

Provides mapping between the PDMS HSSR cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *HSSR_PLine* (on page 193).

InsulationAttrMap

Maps PDMS Insulation attributes to Smart 3D CStructInsulation class properties. For more information, see *InsulationAttrMap* (on page 193).

InsulationMap

Provides mapping for the PDMS fire-proofing reference SPRE to the corresponding Smart 3D **InsulationSpec** and **Length**. The PDMS fire-proofing reference SPRE contains concatenated PDMS values ([SPRE]-[MATR]-[GRADE]-[FIRE]). For more information, see *InsulationMap* (on page 193).

JointRefMap

Provides mapping between the PDMS joint reference SPRE and the Smart 3D assembly connection part number. For more information, see *JointRefMap* (on page 194).

L_PLine

Provides mapping between the PDMS L cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *L_PLine* (on page 194).

M_PLine

Provides mapping between the PDMS M cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *M_PLine* (on page 194).

MC_PLine

Provides mapping between the PDMS MC cross-sections **PLine** attribute and Smart 3D standard cross-sections cardinal point. For more information, see *MC_PLine* (on page 194).

MT_PLine

Provides mapping between the PDMS MT cross-sections **PLine** attribute and Smart 3D standard cross-sections cardinal point. For more information, see *MT_PLine* (on page 194).

PIPE_PLine

Provides mapping between the PDMS PIPE cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *PIPE_PLine* (on page 195).

PlatePartMap

Provides mapping between PDMS FLOOR attributes and Smart 3D slab properties. For more information, see *PlatePartMap* (on page 195).

PlateThicknessDirMap

Provides mapping between the PDMS **Panel Justification** attribute and the Smart 3D **General Plate Thickness Direction** attribute. For more information, see *PlateThicknessDirMap* (on page 195).

RS_PLine

Provides mapping between the PDMS RS cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *RS_PLine* (on page 196).

S_PLine

Provides mapping between the PDMS S cross-sections **PLine** attribute and the Smart 3D standard cross-sections cardinal point. For more information, see *S_PLine* (on page 196).

SlabFacePositionMap

Provides mapping between the PDMS **Floor Justification** attribute and the Smart 3D **Slab Face Position** attribute. For more information, see *SlabFacePositionMap* (on page 196).

SPSMemberSystemCurveMap

Maps PDMS GENSEC attributes to Smart 3D SPSMemberSystemCurve (Curved Member Systems) class properties. For more information, see *SPSMemberSystemCurveMap* (on page 196).

SPSMemberSystemLinearMap

Maps PDMS SCTN attributes to Smart 3D SPSMemberSystemLinear (Linear Member Systems) class properties. For more information, see *SPSMemberSystemLinearMap* (on page 197).

SPSSlabEntityGWallMap

Provides mapping between PDMS GWALL attributes and Smart 3D slab properties. For more information, see *SPSSlabEntityGWallMap* (on page 197).

SPSSlabEntityMap

Provides mapping between PDMS PANEL attributes and Smart 3D plate properties. For more information, see *SPSSlabEntityMap* (on page 197).

SPSWallSystemSTWallMap

Provides mapping between PDMS STWALL attributes and Smart 3D straight wall properties. For more information, see *SPSWallSystemSTWallMap* (on page 197).

SPSWallSystemWallMap

Provides mapping between PDMS WALL attributes and Smart 3D curved wall properties. For more information, see *SPSWallSystemWallMap* (on page 197).

StandardCrossSecAdditionalAtt

Provides mapping between PDMS cross-sections and Smart 3D standard cross-sections. Smart 3D **ReferenceStandard** and **CrossSection** attribute values are obtained from the corresponding cross-sections in the Smart 3D catalog. For more information, see *StandardCrossSecAdditionalAtt* (on page 198).

StructureClassMap

Maps the supported structure classes between PDMS and Smart 3D. This is the main mapping sheet for the structure discipline. This sheet contains cross-references to the class mapping sheets for **SPSSlabEntity**, **Plate**, **SPSMemberSystemLinear**, **SPSMemberSystemCurve**, **CStructInsulation**, **SPGCoordinateSystem**, and **StructureGlobals**. This mapping sheet also contains a global sheet that provides additional mapping information. For more information, see *StructureClassMap* (on page 198).

StructureGlobalsMap

Defines global settings for structural model data import. For more information, see *StructureGlobalsMap* (on page 199).

StructureMatSpecMap

Provides mapping for Smart 3D **MaterialType** and **MaterialGrade** attributes. This translation sets these attributes to the corresponding PDMS structural Material value. The PDMS structural Material value contains the concatenated values for Material and Grade ([MATR]-[GRADE]), which are obtained from the PDMS DATAL file. For more information, see *StructureMatSpecMap* (on page 199).

StructurePlateMatSpecMap

Provides mapping for Smart 3D **PlateType** and **PlateGrade** attributes. These attributes are set to the corresponding PDMS Panel Material value. The PDMS Panel Material value contains the concatenated values for Material and Grade ([MATR]-[GRADE]), which are obtained from the PDMS DATAL file. For more information, see *StructurePlateMatSpecMap* (on page 200).

StructureSlabMatSpecMap

Provides mapping for Smart 3D **SlabType** and **SlabComposition** attributes. These attributes are set to the corresponding PDMS Floor Material value. The PDMS Floor Material value contains the concatenated values for Material and Grade ([MATR]-[GRADE]), which are obtained from the PDMS DATAL file. For more information, see *StructureSlabMatSpecMap* (on page 200).

W_PLine

Provides mapping between the PDMS W cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *W_PLine* (on page 201).

WallCardinalPointMap

Provides mapping between the PDMS wall JUSL attribute and the Smart 3D wall cardinal point. For more information, see *WallCardinalPointMap* (on page 201).

WallCrossSecCompositionMap

Provides mapping for Smart 3D wall composition, cross-section, thickness, and height attributes. These attributes are applied to the corresponding wall. The PDMS value contains the concatenated values for spec reference and material reference ([SPRE]-[MATR]), which are obtained from the PDMS DATAL file. For more information, see *WallCrossSecCompositionMap* (on page 201).

WT_PLine

Provides mapping between the PDMS WT-cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point. For more information, see *WT_PLine* (on page 202).

XSectionAdditionalAttr

Maps Smart 3D **RotationAngle** and **Reflect** attributes to the corresponding PDMS cross-section. For more information, see *XSectionAdditionalAttr* (on page 202).

BUBoxFM_PLine

The **BUBoxFM_PLine** sheet provides mapping between the PDMS BUBoxFM cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUBoxFM cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which the **PDMS Value** setting is to be mapped.

BUC_PLine

The **BUC_PLine** sheet provides mapping between the PDMS BUC cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUC cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which the **PDMS Value** setting is to be mapped.

BUConc_PLine

The **BUConc_PLine** sheet provides mapping between the PDMS BUConc cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUConc cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

BUI_PLine

The **BUI_PLine** sheet provides mapping between the PDMS BUI cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUI cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

BuiltUpCrossSecAdditionalAtt

The **BuiltUpCrossSecAdditionalAtt** sheet provides mapping between PDMS cross-sections with design parameters and Smart 3D standard cross-sections. Smart 3D **ReferenceStandard** and **CrossSection** attribute values are obtained from corresponding cross sections in the Smart 3D catalog.

Value

Type the PDMS cross-section design parameter to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

BuiltupDesignParametersMap

The **BuiltupDesignParametersMap** sheet provides additional attributes, such as dimensional data, that are set on interfaces. Dimensional data is obtained from the corresponding cross-section design parameters in the PDMS DATAL file.

S3D Value

Type the Smart 3D additional attribute to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **S3D Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

BUL_PLine

The **BUL_PLine** sheet provides mapping between the PDMS BUL cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUL cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

BUTee_PLine

The **BUTee_PLine** sheet provides mapping between the PDMS BUTee cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUTee cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

BUTube_PLine

The **BUTube_PLine** sheet provides mapping between the PDMS BUTube cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS BUTube cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

C_PLine

The **C_PLine** sheet provides mapping between the PDMS C cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS C cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

CoordinateSysAttrMap

The **CoordinateSysAttrMap** sheet maps PDMS **DATUM** attributes to Smart 3D SPGCoordinateSystem class properties.

PDMS Attribute

Type PDMS **DATUM** attribute to map.

S3D Attribute

Type the name of the Smart 3D SPGCoordinateSystem class property to which **PDMS Attribute** is mapped

FootingRefMap

The **FootingRefMap** sheet provides mapping between the PDMS footing reference SPRE and the Smart 3D footing part number.

PDMS Value

Type the value of the PDMS footing reference SPRE to map.

S3D Value

Type the Smart 3D footing part number to which **PDMS Value** is mapped.

HP_PLine

The **HP_PLine** sheet provides mapping between the PDMS HP cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS HP cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

HSSC_PLine

The **HSSC_PLine** sheet provides mapping between the PDMS HSSC cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS HSSC cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

HSSR_PLine

The **HSSR_PLine** sheet provides mapping between the PDMS HSSR cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS HSSR cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

InsulationAttrMap

The **InsulationAttrMap** sheet maps PDMS **FITTING** attributes to Smart 3D CStructInsulation class properties.

PDMS Attribute

Type the PDMS **FITTING** attribute to map.

S3D Attribute

Type the name of the Smart 3D CStructInsulation class property to which **PDMS Attribute** is mapped.

InsulationMap

The **InsulationMap** sheet provides mapping the PDMS fire-proofing reference SPRE to the corresponding Smart 3D **InsulationSpec** and **Length** value. The PDMS fire-proofing reference SPRE contains concatenated PDMS values ([SPRE]-[MATR]-[GRADE]-[FIRE]).

Value

Type the PDMS fire-proofing reference SPRE to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

JointRefMap

The **JointRefMap** sheet provides mapping between the PDMS joint reference SPRE and the Smart 3D assembly connection part number.

PDMS Value

Type the value of the PDMS joint reference SPRE to map.

S3D Value

Type the Smart 3D assembly connection part number to which **PDMS Value** is mapped.

L_PLine

The **L_PLine** sheet provides mapping between the PDMS L cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS L cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

M_PLine

The **M_PLine** sheet provides mapping between the PDMS M cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS M cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

MC_PLine

The **MC_PLine** sheet provides mapping between the PDMS MC cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS MC cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

MT_PLine

The **MT_PLine** sheet provides mapping between the PDMS MT cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS MT cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

PIPE_PLine

The **PIPE_PLine** sheet provides mapping between the PDMS PIPE cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS PIPE cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

PlatePartMap

The **PlatePartMap** sheet provides mapping between PDMS **FLOOR** attributes and Smart 3D slab properties.

PDMS Attribute

Type the PDMS **FLOOR** attribute to map.

S3D Attribute

Type the name of the Smart 3D slab property to which **PDMS Attribute** is mapped.

PlateThicknessDirMap


The **PlateThicknessDirMap** sheet provides mapping between the PDMS **Panel Justification** attribute and the Smart 3D **General Plate Thickness Direction** attribute.

PDMS Value

Type the PDMS **Panel Justification** attribute to map.

S3D Attribute

Type the name of the Smart 3D **General Plate Thickness Direction** attribute to which the **PDMS Value** setting is to be mapped.

 **NOTE** You can define the **Default** value as the PDMS **Panel SJUS** attribute, mapped to the Smart 3D **Plate Molded Directions** attribute. The software uses the **Default** value only if **SJUS** is not defined for the panel **PLOOP** or is not mapped in the mapping file. If you do not map the **Default** value to a **Plate Molded Directions** attribute, the software defines **Slab Molded Direction** as **Center**.

RS_PLine

The **RS_PLine** sheet provides mapping between the PDMS RS cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS RS cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

S_PLine

The **S_PLine** sheet provides mapping between the PDMS S cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS S cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

SlabFacePositionMap

The **SlabFacePositionMap** sheet provides mapping between the PDMS **Floor Justification** attribute and the Smart 3D **Slab Face Position** attribute.

PDMS Value

Type the value of the PDMS **Floor Justification** attribute to map.

S3D Attribute

Type the name of the Smart 3D **Slab Face Position** attribute to which the **PDMS Value** setting is to be mapped.

NOTE You can define the **Default** value in this sheet as the PDMS **Floor SJUS** attribute, mapped to the Smart 3D **Slab Face Position** codelist values. The software uses the **Default** value only if **SJUS** is not defined in the floor **PLOOP** or is not mapped in the mapping file. If you do not map the **Default** value to a **Slab Face Position** codelist value, the software defines the **Slab Face Position** as **Center**.

SPSMemberSystemCurveMap

The **SPSMemberSystemCurveMap** sheet maps PDMS GENSEC attributes to Smart 3D SPSMemberSystemCurve (Curved Member Systems) class properties.

PDMS Attribute

Type the PDMS GENSEC attribute to map.

S3D Attribute

Type the name of the PSMemberSystemCurve (Curved Member Systems) class property to which **PDMS Attribute** is mapped.

SPSMemberSystemLinearMap

The **SPSMemberSystemLinearMap** sheet maps PDMS SCTN attributes to Smart 3D SPSMemberSystemLinear (Linear Member Systems) class properties.

PDMS Attribute

Type the PDMS SCTN attribute to map.

S3D Attribute

Type the name of the SPSMemberSystemLinear (Linear Member Systems) class property to which **PDMS Attribute** is mapped.

SPSSlabEntityGWallMap

The **SPSSlabEntityGWallMap** sheet maps PDMS GWALL attributes to Smart 3D slab properties.

PDMS Attribute

Type the PDMS GWALL attribute to map.

S3D Attribute

Type the name of the Smart 3D slab property to which **PDMS Attribute** is mapped.

SPSSlabEntityMap

The **SPSSlabEntityMap** sheet provides mapping between PDMS PANEL attributes and Smart 3D plate properties.

PDMS Attribute

Type the PDMS PANEL attribute to map.

S3D Attribute

Type the name of the Smart 3D plate property to which **PDMS Attribute** is mapped.

SPSWallSystemSTWallMap

The **SPSWallSystemSTWallMap** sheet maps PDMS STWALL attributes to Smart 3D straight wall properties.

PDMS Attribute

Type the PDMS STWALL attribute to map.

S3D Attribute

Type the name of the Smart 3D straight wall property to which **PDMS Attribute** is mapped.

SPSWallSystemWallMap

The **SPSWallSystemWallMap** sheet maps PDMS WALL attributes to Smart 3D curved wall properties.

PDMS Attribute

Type the PDMS WALL attribute to map.

S3D Attribute

Type the name of the Smart 3D curved wall property to which **PDMS Attribute** is mapped.

ST_PLine

The **ST_PLine** sheet provides mapping between the PDMS ST cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value


Type the value of the PDMS ST cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

StandardCrossSecAdditionalAtt

The **StandardCrossSecAdditionalAtt** sheet provides mapping between PDMS cross-sections and Smart 3D standard cross-sections.

 **NOTE** The translation obtains Smart 3D **ReferenceStandard** and **CrossSection** attribute values from the corresponding cross-sections in the Smart 3D catalog.

Value


Type the PDMS cross-section to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

 **NOTE** You can define the **Default** value in this sheet as the PDMS **CrossSection** attribute, mapped to the Smart 3D **ReferenceStandard** and **CrossSection** attributes. The software uses the **Default** value only if **SpecRef** is not defined for the section or is not mapped in the mapping file. If you do not map the **Default** value to a **ReferenceStandard** and **CrossSection** attribute, the software does not process the section with proper logging.

StructureClassMap

The **StructureClassMap** sheet defines the structure class mapping between Smart 3D and PDMS. The structure classes that are displayed on this sheet are the only structure classes that are currently supported for export to PDMS.

★ **IMPORTANT** Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D structure class to map.

PDMS Class Name

Displays the PDMS structure class to which **S3D Class Name** is mapped.

Attributes Sheet

Displays the sheet name in the PDMSS3DImport.xls workbook that maps Smart 3D structure class properties to PDMS.

StructureGlobalsMap

The **StructureGlobalsMap** sheet maps global settings for structural model data import.

★ **IMPORTANT** The values contained on this sheet define the global settings for structure model export. Do not modify these values.

PDMS Attribute

Displays the name of the PDMS attribute to map.

S3D Attribute

Displays the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

StructureMatSpecMap

The **StructureMatSpecMap** sheet provides mapping for Smart 3D **MaterialType** and **MaterialGrade** attributes. These attributes are set to the corresponding PDMS Material value. The PDMS Material value contains the concatenated values for Material and Grade ([MATR]-[GRADE]), which are obtained from the PDMS DATAL file.

Value

Type the PDMSMaterial value to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

📘 **NOTE** You can define the **Default** value as the PDMS **Material** attribute, mapped to the Smart 3D **MaterialType** and **MaterialGrade** attributes. The software uses the **Default** value only if **MatRef** is not defined in the section or is not mapped in the mapping file. If you do not map the **Default** value to the **MaterialType** and **MaterialGrade** attributes, the software does not process the section with proper logging.

StructurePlateMatSpecMap

The **StructurePlateMatSpecMap** sheet provides mapping for Smart 3D **PlateType** and **PlateGrade** attributes. These attributes are set to the corresponding PDMS Panel Material value. The PDMS Panel Material value contains the concatenated values for Material and Grade ([MATR]-[GRADE]), which are obtained from the PDMS DATAL file.

Value


Type the PDMS Panel Material value to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

 **NOTE** You can define the **Default** value in this sheet as the PDMS **Material** attribute, mapped to the Smart 3D **PlateType** and **PlateGrade** attributes. The software uses the **Default** value if **MatRef** is not defined for the panel or is not mapped in the mapping file. If you do not map the **Default** value to a **PlateType** and **PlateGrade** attribute, the software does not process the panel with proper logging.

StructureSlabMatSpecMap

The **StructureSlabMatSpecMap** sheet provides mapping for Smart 3D **SlabType** and **SlabComposition** attributes. These attributes are set to the corresponding PDMS Floor Material value. The PDMS Floor Material value contains the concatenated values for Material and Grade ([MATR]-[GRADE]), which are obtained from the PDMS DATAL file.

Delivered mapping contains Smart 3D slab composition **Imported_Slab** and slab type **General_Slab** as default values.

Value

Type the PDMS Floor Material value to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

NOTES

- You can define the **Default** value as the PDMS **Material** attribute, mapped to the Smart 3D **SlabType** and **SlabComposition** attributes. The software uses the **Default** value only if **MatRef** is not defined for the floor or is not mapped in the mapping file. If you do not map the **Default** value to a **SlabType** and **SlabComposition** attribute, the software does not process the floor with proper logging.

- If the catalog does not contain Smart 3D slab type and composition, an administrator must bulkload the PDMSS3DAllCommon.xls, PDMSS3DStructSlabGeneral.xls and PDMSS3DStructSlabLayer.xls workbooks delivered in *[Reference Data Folder]\SharedContent\Data\Translators\PDMS3DImport\ConfigurationFiles\Bulkloadables* folder, to get the exact thickness of a slab. Bulkload the workbooks using the **Append to existing catalog** option.

W_PLine

The **WT_PLine** sheet provides mapping between the PDMS WT cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS WT cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

WallCardinalPointMap

The **WallCardinalPointMap** sheet provides mapping between the PDMS wall **JUSL** attribute and the Smart 3D wall cardinal point.

NOTE You can define the **Default** value in each sheet as the PDMS **PLine** attribute, mapped to the Smart 3D cardinal point. The software uses the **Default** value only if **JUSL** is not defined for the section or is not mapped in the mapping file. If you do not map the **Default** value to a cardinal point, the software defines the cardinal point as **5-Center**.

PDMS Value

Type the value of the PDMS wall **JUSL** attribute to map.

S3D Attribute

Type the Smart 3D wall cardinal point to which **PDMS Value** setting is to be mapped.

WallCrossSecCompositionMap

The **WallCrossSecCompositionMap** sheet provides mapping for Smart 3D wall composition, cross-section, thickness, and height attributes. These attributes are applied to the corresponding wall. The PDMS value contains the concatenated values for spec reference and material reference ([SPRE]-[MATR]), which are obtained from the PDMS DATAL file.

Value

Type the concatenated values of ([SPRE]-[MATR]) to map. If there is no defined MATR value, type "-0" as its value.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

WT_PLine

The **WT_PLine** sheet provides mapping between the PDMS WT cross-section **PLine** attribute and the Smart 3D standard cross-section cardinal point.

PDMS Value

Type the value of the PDMS WT cross-section **PLine** attribute to map.

S3D Value

Type the Smart 3D standard cross-section cardinal point to which **PDMS Value** is mapped.

XSectionAdditionalAttr

The **XSectionAdditionalAttr** sheet maps Smart 3D **RotationAngle** and **Reflect** attributes to the corresponding PDMS cross-section.

Value

Type the PDMS cross-section to map.

Attribute Name

Type the name of the Smart 3D attribute to which **Value** is mapped.

Attribute Value

Type the Smart 3D attribute value.

HVAC Translation Maps

Use the HVAC translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map PDMS HVAC attributes to the corresponding Smart 3D HVAC properties. Before importing PDMS HVAC model data to Smart 3D, modify these sheets to ensure that the following criteria are met:

- All PDMS HVAC specifications that present in the PDMS DATAL or .att file are mapped to corresponding Smart 3D specifications.
- All components in PDMS are mapped to corresponding Smart 3D HVAC components.
- All PDMS HVAC specifications that are present in the PDMS DATAL or .att file are mapped to the correct Smart 3D materials.

After you complete all of the mapping in the PDMSS3DImportMapping.xls workbook, run **PDMS Import Validation** to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see *PDMS Import Validation* (on page 72).

HVACGlobalsMap

Defines the global settings for importing PDMS .att files for the HVAC discipline. For more information, see *HVACGlobalsMap* (on page 204).

CPDuctRunMap

Maps PDMS BRANCH attributes, such as **HBORE** and **PSPE** to the Smart 3D HVAC schema duct run class properties. For more information, see *CPDuctRunMap* (on page 204).

CPDuctingSystemMap

Maps PDMS **PIPE** attributes (when HVAC **BRANCH** attributes are included) to the Smart 3D HVAC schema's ducting system properties. For more information, see *CPDuctingSystemMap* (on page 205).

DuctComponentAttrsMap

Maps PDMS HVAC component attributes, such as **FTUBE**, to the Smart 3D HVAC schema component attributes or to **UserAttributes**. For more information, see *DuctComponentAttrsMap* (on page 205).

DuctFittingAttrsMap

Maps PDMS HVAC fittings and other PDMS component attributes (excluding **FTUBE**) to Smart 3D HVAC schema fitting attributes, such as **BendRadius**, or to **UserAttributes** <Property>. For more information, see *DuctFittingAttrsMap* (on page 205).

HVACAdditionalAttsMap

Maps any additional attributes that are required by Smart 3D HVAC PartNumbers (that is, the part class of the Smart 3D component and geometry type). You can also use this sheet to map the design parameters of a specific PDMS HVAC component (in the format DESP[2]) to the relevant Smart 3D HVAC schema component or fitting dimensional data. Mapping design parameters requires that you specify the Smart 3D Interface and property (in the format *DimensionalData.<InterfaceName>.<Property>*). For more information, see *HVACAdditionalAttsMap* (on page 205).

HVACClassMap

Maps the supported HVAC classes between PDMS and Smart 3D. This is the main mapping sheet for the HVAC discipline. For more information, see *HVACClassMap* (on page 206).

HVACCrossSectionMap

Maps the PDMS HVAC component **HCON** value in the PDMS DATAL or .att file to the Smart 3D HVAC cross-section codelist value. For more information, see *HVACCrossSectionMap* (on page 206).

HVACRunMaterialMap

Maps the PDMS HVACRun specification to Smart 3D material values. This mapping also sets the Material property for the Smart 3D HVAC schema duct run class properties. For more information, see *HVACRunMaterialMap* (on page 206).

S3DHVACXMLPartTypeMap

Maps the PDMS HVAC elements, such as REDUCER, FTUBE, and ELBOW, that are present in the DATAL or .att file to relevant Smart 3D HVAC components or fittings. For more information, see *S3DHVACXMLPartTypeMap* (on page 206).

SPREFS3DHVACIdentifierPttrnMap

Maps PDMS HVAC component **SPRE** attributes to relevant Smart 3D HVAC part numbers. For more information, see *SPREFS3DHVACIdentifierPttrnMap* (on page 207).

PDMSS3DFileConstants

Defines the PDMS constants that are present in the HVAC .att file to relevant Smart 3D values. These Smart 3D constants are used in the code. For more information, see *PDMSS3DFileConstants* (on page 184).

HVACGlobalsMap

The **HVACGlobalsMap** sheet defines the global settings for importing a PDMS DATAL or .att file. The values contained on this sheet define the global settings for HVAC model data import. Do not modify these values.

PDMS Attribute

Displays the name of the PDMS attribute to map.

S3D Attribute

Displays the name of the Smart 3D attribute to which **PDMS Attribute** is mapped

CPDuctRunMap

The **CPDuctRunMap** sheet maps PDMS BRANCH attributes, such as **HBORE** and **PSPE** to Smart 3D HVAC duct run class properties.

PDMS Attribute

Type the PDMS BRANCH attribute to map.

S3D Attribute

Type the Smart 3D duct run class property to which **PDMS Attribute** is mapped.

CPDuctingSystemMap

The **CPDuctingSystemMap** sheet maps PDMS PIPE attributes (when HVAC BRANCH attributes are included) to the Smart 3D HVAC schema ducting system properties.

PDMS Attribute

Type the PDMS PIPE attribute to map.

S3D Attribute

Type the name of the Smart 3D HVAC ducting system property to which **PDMS Attribute** is mapped.

DuctComponentAttrsMap

The **DuctComponentAttrsMap** sheet maps PDMS HVAC component attributes to Smart 3D HVAC component attributes or to **UserAttributes**.

PDMS Value

Defines the PDMS object attribute to map.

S3D Value

Defines the Smart 3D object attribute to which **PDMS Value** is mapped.

DuctFittingAttrsMap

The **DuctFittingAttrsMap** sheet maps PDMS HVAC fittings and other PDMS component attributes (excluding **FTUBE**) to the Smart 3D HVAC schema fitting attributes, such as **BendRadius**, or **UserAttributes**.<Property>

PDMS Attribute

Type the PDMS HVAC fitting or component attribute to map.

S3D Attribute

Type the name of the Smart 3D HVAC fitting attribute to which **PDMS Attribute** is mapped.

HVACAdditionalAttsMap

The **HVACAdditionalAttsMap** sheet maps any additional attributes that are required by Smart 3D HVAC part numbers (that is, the part class of the Smart 3D component and geometry type).

S3D Value

Type the Smart 3D attribute.

Attribute Name

Type the name of the Smart 3D attribute to which **S3D Value** is mapped.

Attribute Value

Type the required value for the attribute.

HVACClassMap

The **HVACClassMap** sheet defines the HVAC class mapping between Smart 3D and PDMS. The HVAC classes that display on the **HVACClassMap** sheet are the only HVAC classes that the software currently supports for import to Smart 3D. Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D HVAC class to map.

PDMS Class Name

Displays the PDMS HVAC class to which **Smart 3D Class Name** is mapped.

Attributes Sheet

Displays the sheet name in the PDMSS3DImportMapping.xls workbook that maps PDMS HVAC class attributes to Smart 3D.

HVACCrossSectionMap

The **HVACCrossSectionMap** sheet maps the PDMS HVAC component **HSTU** and **LSTU** values in the PDMS DATAL or .att file to the Smart 3D HVAC cross-section codelist value.

PDMS Value

Type the PDMS HVAC component **HCON** and **LSTU** values to map.

S3D Value

Type the Smart 3D HVAC cross-section codelist value to which **PDMS Value** is mapped.

HVACRunMaterialMap

The **HVACRunMaterialMap** sheet maps the PDMS HVACRun specification to Smart 3D material values. This mapping also sets the Material property for the Smart 3D HVAC duct run class properties.

PDMS Value

Defines the PDMS object to which **S3D Value** is mapped.

S3D Value

Defines the Smart 3D object to map.

S3DHVACXMLPartTypeMap

The **S3DHVACXMLPartTypeMap** sheet maps the PDMS HVAC elements, such as REDUCER, FTUBE, and ELBOW, that are present in the DATAL or ATT file to relevant Smart 3D HVAC components or fittings.

PDMS Value

Defines the PDMS HVAC element to map.

S3D Value

Defines the Smart 3D HVAC component or fitting to which **PDMS Value** is mapped.

SPREFS3DHVACIdentifierPttrnMap

The **SPREFS3DHVACIdentifierPttrnMap** sheet maps PDMS HVAC component **SPRE** attributes to relevant Smart 3D HVAC part numbers.

PDMS Value


Defines the PDMS HVAC component **SPRE** attribute to map.

S3D Value

Defines the Smart 3D part number to which **PDMS Value** is mapped.

PDMSS3DFileConstants

The **PDMSS3DFileConstants** sheet defines the PDMS constants that are present in the PDMS piping and HVAC .att file to relevant Smart 3D values. The values contained on this sheet define the Smart 3D constants that are used in the code. Do not modify these values.

 **NOTE** If there are any changes, you can define additional constants in the **PDMS Attribute Name** column.

Value

Displays the name of the Smart 3D constant to which **PDMS Attribute Name** is mapped.

PDMS Attribute Name

Displays the constant present in the PDMS piping or HVAC .att file to map.

Hangers and Supports Translation Maps

Use the support translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map PDMS support attributes to Smart 3D support properties. Before importing a Smart 3D supports model, modify these sheets to ensure that the following criteria are met:

- All HANGER elements in PDMS are mapped to the corresponding support components in Smart 3D.

★ **IMPORTANT** After you complete all of the mapping in the PDMSS3DImportMapping.xls workbook, run **PDMS Import Validation** to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see *PDMS Import Validation* (on page 72).

The following support translation maps are delivered in the PDMSS3DImportMapping.xls workbook.

CHgrDesignSupportMap

Maps Smart 3D CHgrDesignSupport class properties and PDMS HANGER element class attributes. For more information, see *CHgrDesignSupportMap* (on page 208).

CHgrSupportComponentMap

Maps Smart 3D CHgrStdComponent class properties to PDMS HANGER element class attributes. For more information, see *CHgrSupportComponentMap* (on page 209).

SupportClassMap

Maps the supported Support classes between PDMS and Smart 3D. This is the main mapping sheet for the Supports discipline. This sheet contains different class map sheets for CHgrDesignSupport and CHgrStdComponent. This sheet also contains a global sheet, which includes additional mapping information. For more information, see *SupportClassMap* (on page 209).

SuppCompAdditionalAttributes

Maps additional attributes, such as dimensional data and adjustment matrix, for Smart 3D support components. For more information, see *SuppCompAdditionalAttributes* (on page 209).

SupportCompPartNumberValueMap

Maps the PDMS HANGER element **SPRE** to the Smart 3D support **PartNumber** property. For more information, see *SupportCompPartNumberValueMap* (on page 210).

SupportsGlobalsMap

Maps any additional attributes that are required to map PDMS HANGER elements to the Smart 3Dsupport component **PartNumber**. For more information, see *SupportsGlobalsMap* (on page 210).

CHgrDesignSupportMap

The **CHgrDesignSupport** sheet maps Smart 3D CHgrDesignSupport class properties and PDMS HANGER element attributes.

PDMS Attribute

Type the PDMS HANGER element attribute to map.

S3D Attribute

Type the name of the Smart 3D design support property to which **PDMS Attribute** is mapped.

CHgrSupportComponentMap

The **CHgrSupportComponent** sheet maps Smart 3D CHgrStdComponent class properties to PDMS HANGER element class attributes.

PDMS Attribute

Type the PDMS HANGER element class attribute to map.

S3D Attribute

Type the name of the Smart 3D CHgrStdComponent class property to which **PDMS Attribute** is mapped.

SupportClassMap

The **SupportsClassMap** sheet defines the Supports class mapping between Smart 3D and PDMS. The Support classes that display on the **SupportsClassMap** sheet are the only Supports classes that the software currently supports for import to Smart 3D. Do not modify any of the values on this sheet.

S3D Class Name

Displays the Smart 3D Support class to map.

PDMS Class Name

Displays the PDMS Support class to which **S3D Class Value** is mapped.

Attributes Sheet

Displays the sheet name in the PDMSS3DImportMapping.xls workbook that maps PDMS Support class attributes to Smart 3D.

SuppCompAdditionalAttributes

The **SuppCompAdditionalAttributes** sheet maps additional attributes, such as dimensional data and adjustment matrix, for Smart 3D support components.

S3D Value

Type the Smart 3D attribute.

Attribute Name

Type the name of the Smart 3D attribute to which **S3D Value** is mapped.

Attribute Value

Type the required value for the attribute.

SupportCompPartNumberValueMap

The **SupportCompPartNumberValueMap** sheet maps the PDMS HANGER element **SPRE** to the Smart 3D support **PartNumber** property.

PDMS Value

Defines the PDMS object attribute to map.

S3D Value

Defines the Smart 3D object attribute to which **PDMS Value** is mapped.

SupportGlobalsMap

The **SupportGlobalsMap** sheet maps any additional attributes that are required to map PDMS HANGER element attributes to the Smart 3D support component **PartNumber**.

PDMS Attribute

Type the PDMS HANGER element attribute to map.

S3D Attribute

Type the name of the Smart 3D support component property to which **PDMS Attribute** is mapped.

Hierarchy Translation Maps

Use the hierarchy translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map the PDMS hierarchy to Smart 3D systems. Before importing the PDMS model, modify these sheets to ensure that all PDMS hierarchy element tags in the datal file are mapped to the equivalent system in Smart 3D.

★ **IMPORTANT** After you complete all of the mapping in the PDMSS3DImportMapping.xls workbook, run **PDMS Import Validation** to validate the mapping data in the workbook. Resolve any missing entries reported by the validation tool. For more information, see *PDMS Import Validation* (on page 72).

The following hierarchy translation maps are delivered in the PDMSS3DImportMapping.xls workbook.

Hierarchy Class Map

Maps the supported hierarchy classes between PDMS and Smart 3D. This is the main mapping sheet for the hierarchy discipline. For more information, see *HierarchyClassMap* (on page 211).

HierarchyElementAttrsMap

Maps hierarchy element attributes between PDMS and Smart 3D. For more information, see *HierarchyElementAttrsMap* (on page 211).

HierarchyClassMap

The **HierarchyClassMap** sheet displays the hierarchy class mapping between PDMS and Smart 3D. You must map any hierarchy element to the hierarchy classes specified in the mapping sheet. If there is no mapping provided for a hierarchy element in the datal file, then the software automatically treats that hierarchy element as a generic system during import.

📘 **NOTE** Do not modify any of the Smart 3D class names in this sheet.

PDMS Class Name

Displays the PDMS hierarchy element class to map.

S3D Class Name

Displays the Smart 3D hierarchy class to which **PDMS Class Name** is mapped.

Attributes Sheet

Displays the sheet name in the PDMSS3DImportMapping.xls workbook that maps PDMS hierarchy class properties to Smart 3D.

HierarchyElementAttrsMap

The **HierarchyElementAttrsMap** sheet maps the hierarchy element attributes between PDMS and Smart 3D.

PDMS Attribute

Type the PDMS attribute to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

Electrical Translation Maps

Use the electrical translation mapping sheets in the PDMSS3DImportMapping.xls workbook to map PDMS electrical to relevant Smart 3D electrical properties. Before importing PDMS electrical model data to Smart 3D, modify these sheets to ensure that the following criteria are met:

- Map all PDMS specifications in the PDMS .datal file to the corresponding Smart 3D specifications.
- Map all components in the PDMS model to the corresponding components in Smart 3D.

The following electrical translation maps are delivered in the PDMSS3DImportMapping.xls workbook:

ElectricalClassMap

Defines the electrical class mapping between PDMS and Smart 3D. The electrical classes that display on the **ElectricalClassMap** sheet are the only electrical classes currently supported for import to Smart 3D. For more information, see *ElectricalClassMap* (on page 214).

CPElectricalSystemMap

Maps PDMS pipe attributes to Smart 3D electrical system properties. For more information, see *CPElectricalSystemMap* (on page 214).

CPCablewayMap

Maps PDMS BRANCH component SPEC attributes to relevant Smart 3D cable tray run class properties. For more information, see *CPCablewayMap* (on page 214).

ElectricalRunSpecMap

Maps PDMS electrical specifications to the relevant Smart 3D specification. For more information, see *ElectricalRunSpecMap* (on page 215).

ElectricalRunSpecAdditionalAttr

Maps catalog differences between PDMS and Smart 3D cable tray specifications. For more information, see *ElectricalRunSpecAdditionalAttr* (on page 215).

ElectricalFittingAttrsMap

Maps PDMS electrical element attributes to relevant Smart 3D electrical fitting properties. For more information, see *ElectricalFittingAttrsMap* (on page 215).

ElectricalGlobalsMap

Defines the global settings for importing a PDMS .datal or .att file. For more information, see *ElectricalGlobalsMap* (on page 216).

SP3DElectricalXMLPartTypeMap

Maps PDMS electrical elements from the .datal file or the .att file to relevant Smart 3D electrical components and fittings. For more information, see *SP3DElectricalXMLPartTypeMap* (on page 216).

PDMS3DFileConstants

Maps PDMS constants from the piping, electrical, and HVAC .att file to relevant Smart 3D values. For more information, see *PDMS3DFileConstants* (on page 216).

ElectricalComponentSPREFMap

Maps PDMS component SPRE to the equivalent Smart 3D part number. For more information, see *ElectricalComponentSPREFMap* (on page 216).

ElectricalComponentAddAttrMap

Maps additional required electrical attributes to Smart 3D part numbers. For more information, see *ElectricalComponentAddAttrMap* (on page 217).

ElectricalClassMap

The **ElectricalClassMap** sheet defines the electrical class mapping between PDMS and Smart 3D. The electrical classes that display on the **ElectricalClassMap** sheet are the only electrical classes currently supported for import to Smart 3D.

★ **IMPORTANT** Do not modify any of the Smart 3D class names in this sheet.

PDMS Class Name

Displays the PDMS electrical class to map.

S3D Class Name

Displays the Smart 3D electrical class to which **PDMS Class Name** is mapped.

Attributes Sheet

Displays the sheet name in the PDMS3DImport.xls workbook that maps PDMS electrical class properties to Smart 3D.

CPElectricalSystemMap

The **CPElectricalSystemMap** sheet maps PDMS PIPE attributes to Smart 3D electrical system properties.

PDMS Attribute

Type the name of the PDMS PIPE attribute to map.

S3D Attribute

Type the name of the Smart 3D electrical system attribute to which **PDMS Attribute** is mapped.

CPCablewayMap

The **CPCablewayMap** sheet maps PDMS BRANCH component SPEC attributes to relevant Smart 3D cable tray run class properties.

PDMS Attribute

Type the PDMS BRANCH attribute to map.

S3D Attribute

Type the name of the Smart 3D cable tray run class property to which **PDMS Attribute** is mapped.

ElectricalRunSpecMap

The **ElectricalRunSpecMap** sheet maps PDMS electrical specifications to the relevant Smart 3D specification.

PDMS Value

Type the name of the PDMS electrical specification to map.

S3D Value

Type the name of the Smart 3D specification to which **PDMS Value** is mapped.

ElectricalRunSpecAdditionalAttr

The **ElectricalRunSpecAdditionalAttr** sheet maps catalog differences between PDMS and Smart 3D cable tray specifications. Catalog differences include X-Offset, Y-Offset, and Orientation.

PDMS Value

Type the name of the Smart 3D specification.

PDMS Attribute

Type the name of the PDMS attribute to map.

Attribute Value

Type the **PDMS Value** to which the **PDMS Attribute** is mapped.

ElectricalFittingAttrsMap

The **ElectricalFittingAttrsMap** sheet maps PDMS electrical element attributes to relevant Smart 3D electrical fitting properties.

PDMS Attribute

Type the PDMS electrical fitting attribute to map.

S3D Attribute

Type the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

ElectricalGlobalsMap

The **ElectricalGlobalsMap** sheet defines the global settings for importing a PDMS .data1 or .att file. The values contained on this sheet define the global settings for electrical model data import.

★ **IMPORTANT** Do not modify any of the values on this sheet.

PDMS Attribute

Displays the name of the PDMS attribute to map.

S3D Attribute

Displays the name of the Smart 3D attribute to which **PDMS Attribute** is mapped.

SP3DElectricalXMLPartTypeMap

The **SP3DElectricalXMLPartTypeMap** sheet maps PDMS electrical elements present in the .data file or the .att file to relevant Smart 3D electrical components and fittings. These electrical elements include REDUCER, FTUBE, TEE, CROSS, BEND, and ELBOW.

PDMS Value

Type the PDMS electrical element to map.

S3D Value

Type the Smart 3D electrical component or fitting to which **PDMS Value** is mapped.

PDMSS3DFileConstants

The **PDMSS3DFileConstants** sheet maps PDMS constants from the piping, electrical, and HVAC .att file to relevant Smart 3D values. The values on the **PDMSS3DFileConstants** sheet define the Smart 3D constants the software uses.

★ **IMPORTANT** Do not modify any of the values on the **PDMSS3DFileConstants** sheet.

📘 **NOTE** Define additional constants in the **PDMS Attribute Name** column.

Value

Displays the Smart 3D constant to which **PDMS Attribute Name** is mapped.

PDMS Attribute Name

Displays the PDMS constant to map.

ElectricalComponentSPREFMap

The **ElectricalComponentSPREFMap** sheet maps PDMS component SPRE to the equivalent Smart 3D part number.

PDMS Value

Type the PDMS electrical component SPRE attribute to map.

S3D Value

Type the Smart 3D part number to which **PDMS Value** is mapped.

ElectricalComponentAddAttrMap

The **ElectricalComponentAddAttrMap** sheet maps additional required electrical attributes, such as design parameters and orientation, to Smart 3D part numbers.

S3D Value

Type the Smart 3D part number.

S3D Attribute

Type the name of the Smart 3D attribute to which **Smart 3D Value** is mapped.

Attribute Value

Type the required value for the attribute.

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